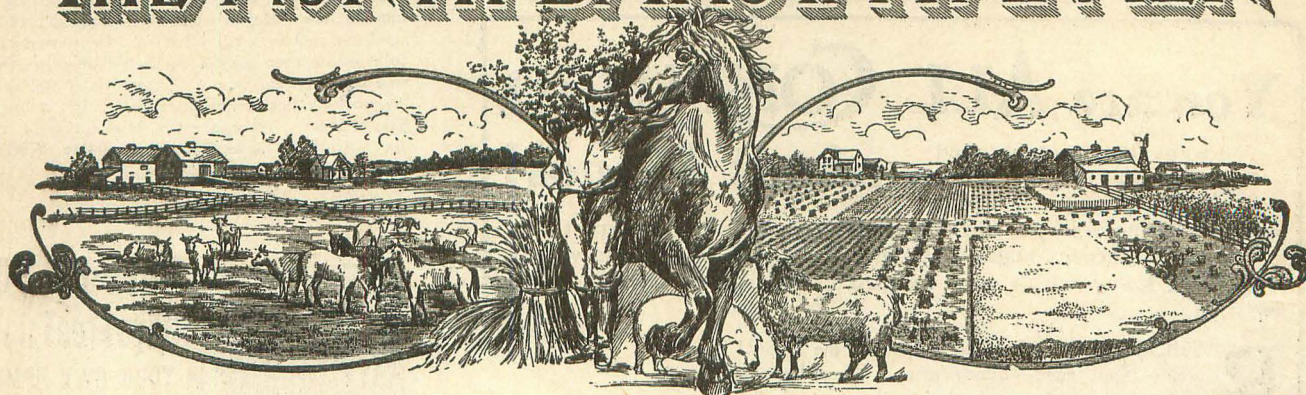


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THE NORTH DAKOTA FARMER



"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS" Alex Alm

311

Vol. 10, No. 5
LISBON, N. D.

NOVEMBER 15, 1908

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FARGO, N. D.



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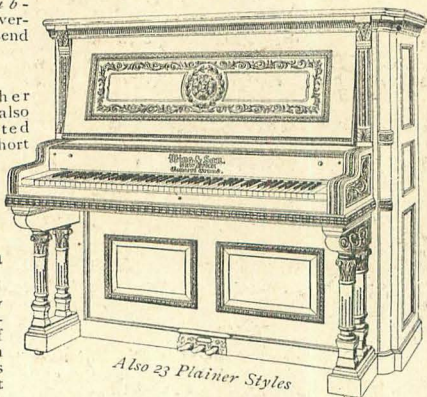
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THE NORTH DAKOTA FARMER

Vol. 10, No. 5

LISBON and FARGO, N. D., NOVEMBER 15, 1908

50 Cents a Year

MY EUROPEAN TRIP

By PRES. J. H. WORST, N. D. A. C.

THE ISLAND OF OVERFLAKKEE, HOLLAND By J. H. Worst

Situated in the southwestern extremity of Holland are a number of islands jutting into the North Sea. These islands are separated from each other and from the mainland by the rivers Maas, Rhine and Scheld and their wide deltas. A casual glance at the map of

flakkee. On the very edge of the island we encountered a lock which admitted the steamer to a broad canal that affords water communication between Middleharness and Sommelsdijk, two villages lying side by side some two miles inland, and the outer world.

Here we met some friends of Dr. Van Es, the A. C. professor of veterinary science who was my traveling companion,

is an amateur photographer of considerable ability, something of a scientist, a good entertainer and, what was most important to me, he speaks fairly good English. His library contains a number of standard English books of fiction, history and poetry, all of which he reads with evident pleasure, tho he has to use the dictionary quite industriously.

Places of Interest

While we were guests of the Van Schouwens they and their cousins, the DeGraffs, one of whom is the village burgomaster, conveyed us to many places of interest on the island. One



John Van Schouwen, Klaas De Graff, Dr. Van Es, J. H. Worst, Jan Van Schouwer, Jan De Graff.

Holland may not at first reveal the presence of these islands, on account of the snug manner of their arrangement and their close proximity to the mainland. But they are of considerable size and are all under a high state of cultivation.

Island of Overflakkee

Starting from Rotterdam our little steamer followed the windings of the Maas, then cut across thru a canal to another arm of the river, all hemmed in by strong dykes, and on out to the sea, then across a stretch of water several miles in width to the island of Over-

flakkee. On the very edge of the island we encountered a lock which admitted the steamer to a broad canal that affords water communication between Middleharness and Sommelsdijk, two villages lying side by side some two miles inland, and the outer world.

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day we visited a number of villages, continuing our journey until we reached the extreme western coast of the island. On this trip we climbed the spiral stone staircase consisting of 246 steps to the summit of the Goderoda light house. From this elevated position we had an uninterrupted view of the North Sea and the whole of Overflakkee and surrounding islands, together with the ribbon-like stretches of water that separate them. The dykes winding their irregular courses around the numerous polders and the ditches that lay thick to the

horizon, make a most interesting picture. From here we could look out over the seas, the rivers and the canals where once the daring Sea Beggars steered their primitive war ships and fought so valiantly against the tyranny of their Spanish king during the 80 years of deadly struggle that finally culminated in the defeat of King Philip and the independence of the Netherlands.

The village of Goderoda has quite a history and was, in the early days, the seat of considerable commerce. In 1421 a great storm destroyed the dykes, inundated the polder and the water having undermined the walls, destroyed the village. A similar catastrophe befell the village in 1530 and again in 1570. In each instance the dykes were broken down by the fierce waves and the polder in which the village is situated was overwhelmed by the

stands a church built in 1348. This village is situated upon the oldest part of the island of Overflakkee.

How Overflakkee Was Made

This island originally consisted of 15 small islands. These small islands were formed from mud washed down into the sea by the rivers Maas, Rhine and Scheld and by the action of the sea tides upon these mud deposits. Several of these little islands at a very early date were protected from inundation, caused by high tides, by being surrounded by earthen walls, or dykes, raised to the height of 15 feet or more and from 60 to 100 feet wide at the base. In course of time the mud, continually washed down by the above named rivers, was thrown up around and between these islands by the tides and waves, forming wide mud flats. When these flats grew large and high enough new dykes were built, en-

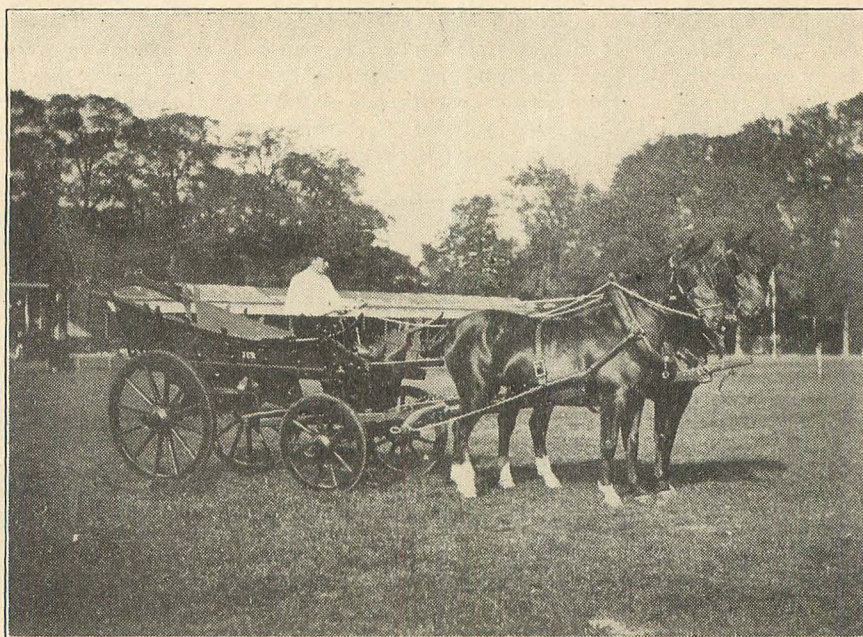
large island—the island of Overflakkee.

Overflakkee contains about 62,000 acres of land and has a population of over 26,000. The last polder was completed eight years ago, but other wide stretches of land now beyond the outer dykes will soon be in condition to be annexed. Holland is thus constantly growing, for the same process is going on along the shores of the northern provinces.

Inhabitants Dwell in Villages

As in most European countries the people generally live in villages, of which there are thirteen on this island. From their village homes they cultivate their little farms in the country, consisting of from two or three acres up to 125 acres, mostly rented land. The largest farm on the island contains 500 acres.

Around each village and for some distance into the surrounding country the



A Team of Oldenberg Coach Horses bred on Overflakkee by Mr. J. C. Roodzant, Dirksland.

sea. In 1482 this village, with the exception of 17 houses was destroyed by fire.

During this drive we visited the village of Stellendam, the seat of an extensive shrimp fishing industry. About 30 small sloops are regularly engaged in the business. In the morning, sails are hoisted and the fleet of vessels sails out thru the canal into the North Sea, where by sailing back and forth they scoop the shrimp up in fine nets. In the afternoon the ships return and the many bushels of shrimp are piled upon tables in a long building where boys and girls and women slip the skins from these crustacea and prepare them for the market.

We also visited Ouddorp where the first dyke was built in 1065. Here

closing considerable portions of these deposits, thus forming a new polder and enlarging the island to the extent of the new polder.

Mud flats, for I can think of no better name, were thus annexed to the different islands from time to time by means of these new dykes. In this way the islands gradually grew larger and larger and also approached nearer to each other. This process of land making, by annexing what was formerly the sea bed, went on for centuries, until the islands approached each other so closely that the channels that separated them became congested with sea mud, when even these were dyked in and what had previously been separate islands became united. Thus in course of time the 15 islands were all united into one

land is cut up into small garden patches where the laboring classes toil, after their regular working hours, to grow potatoes and other vegetables to help support their families.

Land is quite valuable, ranging in price from \$500 to \$680 per acre.

Expert laborers, such as flax pullers, onion pickers, etc., command as much as \$1 to \$1.20 per day when their services are in great demand. The average wage for common field labor is 50 cents a day, tho in harvest time wages occasionally go up to 80 cents a day; the laborer in all cases boarding himself.

The land varies in quality, tho it averages very good, and the principle money crop is governed by the character of the soil. In general, however, winter wheats, oats, sugar beets, potatoes

and onions are the principle money crops, while alfalfa, clover and peas are grown for forage and nitrogen. In the west of the island madder is still grown in a small way and one madder factory takes care of the product. Before the advent of aniline dyes the madder plant was grown extensively and the madder

purchaser of commercial fertilizers, the quality, variety and quantity varying according to the particular crop he wishes to grow. If he is in doubt as to any farm problem, or if his crop is afflicted with any disease or parasite, he consults the provincial agricultural adviser—and takes his advice.

from Germany and France of which their country is made; that made a struggle for religious and civil liberty against the most powerful nation of Europe, which, for length of struggle, patient endurance and tenacity of purpose, places the Dutch in a class by themselves, still lives, and could not but make the land



Winter Scene on Overflakkee.

industry was conducted on a very large scale and was quite profitable.

Some very fine horses are raised here and their cattle are generally thorobred Holsteins. Farmers take great pride in their livestock.

About nine-tenths of the land is owned and rented out by capitalists, the other tenth is owned by the farmers.

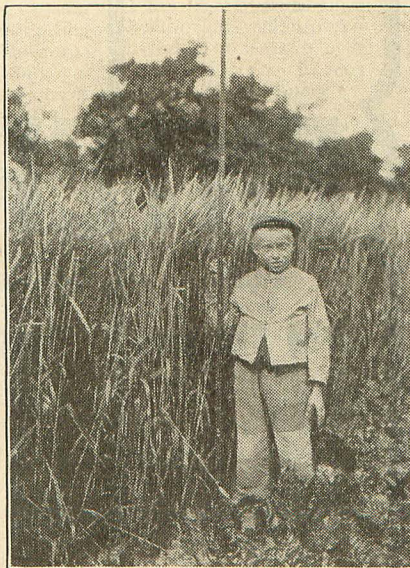
A man worth 100,000 Guilders (\$40,000) is rated as a very rich man.

Farmers are Wise

The farmers are well posted on the needs of the soil and are liberal with the use of both commercial and barn yard fertilizers. They produce excellent crops. We saw one field of wheat near Middlehanress that yielded 70 bushels per acre. Barnyard manure in Holland is considered as sacred as a bank account. The land is never allowed to run down and every acre, so far as fertilizing and thoroughness of tillage can aid, is compelled to produce its best every year. The numerous ditches are regularly cleaned for the rich ooze that gathers in their beds and is spread over the land; all the hay and other roughage and the coarser grains are fed to livestock and the manure carefully saved for the fields; cement conduits convey all the liquids from the stables to a cemented cistern, whence it is pumped into tanks and sprinkled on the fields as we sprinkle water on the city streets. In addition to all this the Holland farmer is a liberal

Dutch Grit

The Dutch farmer moves slowly but studies each step. He is no speculator. What he does he does well. No physical obstacle is too great for him to sur-



Minnesota Wheat No. 163 Growing in Sommelsdijk.

mount. The indomitable Dutch spirit that conquered the sea by raising thousands of miles of earth embankments against it; that dyked in the great rivers that brought the very soil down

of their own creation respond to their demands.

After nearly a week's visit with Jan and Johan Van Schouwen, and after making numerous excursions over the beautiful and highly cultivated island of Overflakkee, we embarked again for Rotterdam with only pleasant memories of the royal hospitality we enjoyed while on the island.

ANOTHER BIG PREMIUM OFFERED AT THE NATIONAL CORN EXPOSITION

The man who exhibits the best sixty ears of corn at the National Corn Exposition in Omaha, December 9-19, gets the most valuable prize, a Port Huron Husker Shredder, worth \$925. This is by \$25 the most costly premium of all those that go to make up the premium list aggregating \$54,000.

This machine, complicated in make-up, is the latest achievement in farm machinery making. It will eat up the corn on fifteen to twenty acres a day, husking the ears and shredding the stalks, producing a fine feed for stock. Or it will husk 1,500 bushels of corn in a ten hour day, doing as much work as three men, ordinarily, merely in the matter of husking, to say *nothing* of the shredding which the man could not do at all.

J. Wilkes Jones, general manager of the Corn Exposition, is confident that this premium alone will be a magnet that will draw many special exhibits. The fact that by the expenditure of \$80,000 the Port Huron Engine and Threshing Company has finally eliminated the dangerous element of this marvelous machine is counted on as making it even more popular than it was when it was regarded as the "most dangerous" of farm machines.

NORTH DAKOTA STAFF AGRICULTURAL COLLEGE TO DEVELOP FUEL POSSIBILITIES OF LIGNITE COAL

In accordance with its policy of cooperation with the farming and industrial interests of the state, the Agricultural College, thru the department of engineering, is preparing to make a study of the properties of lignite coals from the various mines of the state, with a view to determining their fitness for briquetting. V. C. Parker, one of the seniors in the department, has been put in charge of the experimental work and is at present engaged in fitting up a laboratory with the necessary apparatus for the work.

The briquetting of low grade fuels and lignites is a flourishing industry in several European countries, notably Austria, Belgium, France and Germany. As yet there has been no definite effort made to determine the briquetting properties of North Dakota lignite, but there seems to be no good reason why it could not be accomplished. With the 40,000 square miles of lignite deposits in this state, it would mean much for the industrial future of the country if a method is discovered by means of which the coal can be briquetted cheaply and effectively.

In order to obtain the material for the investigations, the department is writing to the managers of representative mines over the state asking them to send samples of 85 pounds or so of their coal to the college laboratories. With the request for the sample is also sent an information blank asking for data concerning the depth of mine, thickness of vein, etc. When the samples are received at the college, they will be labeled and filed, two pounds of the coal being taken out, ground and packed in hermetically sealed vessels for moisture tests, while the rest is kept for the briquetting tests proper.

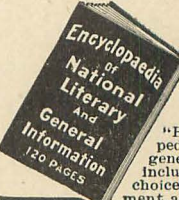
The investigation as planned by the department includes a complete chemical analysis of the coals, a distillation test for the determination of the amounts of tarry substances, a calorimeter test for the determining of the value of the coal, and the briquet-

ting tests, many of which will be made from each sample to try the effects of different binders at different pressures and with different treatments of the fuel.

The work of collecting material, arranging machinery and apparatus for the tests, and gathering data from other experiments, has already been started, and the department expects to commence the actual experimental work with the coal immediately after the first of the year. The work will be carried on during the entire year, and if not finished at the end of that time will be continued next year. It is the desire of the department of engineering to prove conclusively that North Dakota lignite can be profitably briquetted and marketed, and that such briquettes are better than the ordinary lump coal for the consumers use.

If the department succeeds in demonstrating what it believes is true in regard to lignite briquettes it will mean the opening up of the western portion of this

state to all kinds of manufacturing industries, and a permanent increase in the value of coal lands which will put millions of dollars in the pockets of their owners. As almost every farmer in the western portion of the state has a coal mine on his farm, this will benefit practically the whole of the population of that section, and promises to be far-reaching in its results.



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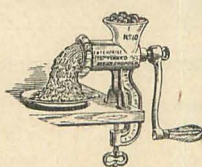
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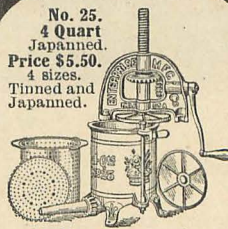
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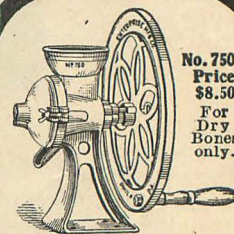


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Price \$5.50.
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Half the work at butchering time is spent in lard and sausage making. You can increase your products and lessen the time and labor of Sausage Stuffing and Lard Pressing if you use an



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Price \$8.50
For
Dry
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only.**

Cracked corn, ground bone, oyster and other shells, etc., are important items of egg-making material and must be furnished in winter to secure an abundance of high-priced eggs. They can be furnished at lowest cost by the use of an

ENTERPRISE

Meat and Food Chopper

is made in standard family sizes, and not only saves half the work at butchering time, but is useful in the kitchen every day in the year. "Enterprise" Meat Choppers cut the meat with a revolving steel knife against a perforated steel cutting plate without crushing, and make tough meat tender. Easily cleaned, practically unbreakable, and will last for years.

Made in 45 sizes and styles; for Hand, Steam and Electric power. No. 5, Small Family Size, \$1.75; No. 10, Large Family Size, \$2.50. Sold direct if not to be had from your dealer.

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Stuffs sausage quickly and uniformly. Patented Corrugated Spout prevents air entering the casing, thus assuring the preservation of the sausage. Cylinder is bored absolutely true. Meat cannot rise above the plate.

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FROM THE NATION'S CAPITOL

By GUY E. MITCHELL

THE NEW FARM EDUCATION

Guy E. Mitchell

A somewhat new idea with reference to the introduction of agricultural education in the common schools of the country was developed by Prof. William J. Spillman, in charge of Farm Management Investigations of the Department of Agriculture, in a recent trip into Missouri. Among other things, Professor Spillman was scheduled to address some 700 teachers attending the teachers' convention at St. Louis.

"I was prepared," said Professor Spillman, "to urge upon this representative body of men and women educators, mostly country teachers, the advisability and necessity of incorporating some agricultural features in their courses. But before I began talking I had an awakening. They did not need stimulation along these lines; they were anxious to teach agriculture, 'but' they told me, 'we do not know how; do not advise us to teach agriculture but tell us how and what to teach.' Here was a long step already taken in advance of what I had expected and you can imagine I had to modify my proposed talk very materially.

"Well," I said, "you cannot be expected to instruct the farm boy or girl, or the farmer himself, in matters on agriculture, because he already knows more on the subject than you do, but you can **study agriculture with him.**

"Now how can we best study agriculture with the farmer and ask his help and thus gain his advice and interest on farm matters rather than tell him that this is right and that this or that is wrong? And then I talked to that body of teachers for several hours, outlining some of the things which could be done by the teacher to interest the students and thru them the farmers of the locality.

"Among other things, I suggested that the students be asked to bring in a statement of the principal crops and acreage in cultivation on their farms, with diagrams and statements of which were the best paying. Then averages could be struck for the district to find out what was the best paying crop, how much it cost and what it returned and what was the net profit. Here then is a problem in agricultural arithmetic.

Agricultural Geography

"Take the study of geography. My first trip as a little boy was out of our own county into the next. On the school geography our county was green, the adjoining one was red. I was dis-

appointed to find that at the actual county line there was no difference in the color of things. My instruction in practical geography had been sadly deficient. Now my suggestion to the teachers was that the student first draw a little map of the school house and grounds; then add the path by which he comes to school and farms by which he passes. On a general map could be added all the paths and all the farms; then the county line perhaps could be drawn in. This may would mean something to the student.

"Then let the teacher go out with the class into the fields and study crops; stimulate interest in some simple plant breeding experiment such as improving seed corn.

Start Plant Breeding

"Supplement this by getting bulletins from the State Experiment Station or from the Department of Agriculture and let each student boy and girl start a little corn breeding patch of his own on his own farm and also let the class start one in the school grounds. See if the seed from each boy's or girl's patch doesn't give a better yield the next year than the average from his father's field. The school can visit some farmer who makes the greatest success of some particular crop of anybody in the neighborhood. The methods used and the reasons for the success can be studied by the teacher and the students

and every student will try to find out why that crop is not a success on his farm. In my talk I cited the case of one teacher in Illinois who took her entire school to a farm where an oat field was infested with smut. They took along a barrel hoop and dropped it over a portion of the oats, counting the smutty heads and the healthy ones enclosed. This was repeated in several parts of the field and an average estimated of the proportion of smutty oats in the field and the money lost thereby. The farmer, himself, became interested and the next year followed the directions in a government bulletin, which the teacher procured, for smut prevention, and that year had no smut in his oats. The influence of the enthusiastic student and teacher in such manner on farm practice is very great and moreover the idea of teaching agriculture in this way is welcomed by the farmer whose children are attending school. The instruction is practical and appeals to him directly.

"There are dozens of subjects which can be taken up in this way covering every feature of farm work—crop growing, animal and plant breeding, farm machinery, studies, forestry—all branches of agriculture—and incorporated in and made a part of the regular studies. There are not and there never will be enough graduates of agricultural colleges to teach agriculture in the common schools; but by this sort of co-operative studying and teaching the entire system of common school education at present very insufficient in the country schools, can be gradually changed and merged into an adequate

THE LATEST

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FOR BOATS on River, Lake or Sea

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10 Sizes, 2 1-2 to 45 Horse Power

ENGINES FOR PUMPING
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SEND NAME and address for **New Catalogue**, or ten cents for LACKAWANNA "INSTRUCTION-TREATISE," a practical Educator on Gasoline Engines for everyone. It costs you nothing to learn what we have. It may save you money. Write us today. Address,

LACKAWANNA MFG. CO.

9 to 29 Coldwell St., Newburgh, N. Y.

New York branch, 126 Liberty St.

and comprehensive course which will give us a really new American agriculture."

The Gold of the Bumble Bee

It used to be a great sport for me, when a small boy on the farm, to go down into the clover field with another choice spirit and kill out a nest of bumble-bees; all the more so because we believed we were ridding the farm of an injury in disposing of these buzzing, stinging fellows. And there was danger enough in it to make it highly exciting too, with our bare legs and feet, resulting in always a number of stings to pay for the sport. It is a good thing for the farmers that there are not too many small boys on the farm as they would unwittingly do him more injury than by eating all his fruit. Do you think I would let children go and break up bumble-bees' nests? As soon would I think of breaking up the old hen's nest and killing her chicks. I told them the story of the bumble-bee in this way:

"Oh Bumble Bee, you're a dusty fellow,

You've powdered your legs with gold"

Truly with gold, actual gold coin to the farmer, for if it were not for the fuzzy legs of the bumble-bee, covered with thousands of tiny hairs which carry the pollen from flower to flower, the farmers' clover fields would be nearly barren of seed. These sturdy, tireless workers visit, each, thousands of clover heads every day and do more to reproduce clover fields than all other insects.

Eradicating Club Root

Club root of cabbage is one of the most annoying yet easily controlled of diseases. To be on the safe side cabbage plants should be started in soil which has not been previously used for cabbage culture. A field in which the disease is found should for several years be kept free of cabbage, turnip, kale, wild mustard, etc., since the fungus winters over in the soil and thrives on any plants of the *brassica* family.

City Men Wield Hoes

Is the market gardener to be run out of business, at least some members of his trade? This is the query as a result of the situation which finds that in the outskirts of our cities the amateur gardeners are going in for the "garden sass" patches to such an extent that the "professional" may feel the same apprehension that the tobacco man would experience if half his patrons would quit the weed.

One of the strongest aids the village *real estate dealer* has in making his sales in the springtime is the apparently universal desire of the city man to operate a garden. Instincts inherited from ancestors who got their livelihood direct

from the land seem to be manifesting themselves in the suburbs to a remarkable degree. Gardening has become such a craze that the desk worker may be seen preparing his soil by the aid of electric light. This invention has added hours to after-dinner diversion in the back yard.

The energetic planter buys several hundred feet of electric wire, fastens it in the basement light socket, and then with an electric bulb on the other end he can have light wherever he wants it in the patch. The bulb commonly is fastened to a long stake, which can be set up in the soft soil at any point and moved without difficulty.

Under these lights the hopeful suburbanites toil, gaining strength of arm, even if they finally have to fall back on the gardener in the country farther out for their vegetables. The back yard is too small for some of the villagers who have the eight-hour work day, and these have leased vacant lots near their cottages.

City folk who used to read the weather reports to get information to govern picnic excursions, trips to the parks, or to other outdoor amusement places, now have a new interest in a paternal government's forecasting as to whether it is going to rain or stay clear.

The weather means the life of their little gardens and the unreasoning conduct of thunderstorms last season caused as much comment in neighboring villages as in any great farming district. Some of the city planters were real angry with the weather man.

Insufficiency of Chemical Analysis

I am going to have my soil chemically analysed. That will show just what it

contains and what fertilizer should be applied. If the nitrogen is all gone, it will be necessary to put on manure or nitrate of soda, if potash, a potash fertilizer, if phosphorus, acid phosphate.

Oh, very well; but what about a German soil experiment of last year which showed that while certain soil needed a nitrogenous fertilizer; it actually contained, according to chemical analysis, 2937.27 pounds of nitrogen per acre, whereas an average annual crop used up only 45 pounds of nitrogen, or a little over 1½ per cent of the nitrogen supply? This simply shows that a chemical analysis* of a soil amount to nothing practically. A soil may be rich in any one of the three principal constituents of plant food; and yet these elements be so closely locked up that the plant actually needs assimilable quantities of the very fertilizer which is lying around on all sides.

Wherever plums hang in clusters touching one another, brown rot development is favored, in susceptible varieties. The spores are washed down by rains and any which came to lodge between two plums that touch are apt to be held there, and to find conditions favorable to growth. If one plum of a cluster is seen to be diseased it should be removed and destroyed at once, as others in the cluster are almost sure to go if the rotting one hangs long in contact with them.

*It shows that the analysis has not been properly made, in this particular case. Soil analyses may show a good deal or they may be a farce.—Editor.

Fout & Porterfield

Pharmacists.

61 BROADWAY,
FARGO, N. D.

Perfumes, Colognes, Toilet Water, White Lead, Linseed Oil, Carriage Paint, Mixed Paint, Roof Paint. Choice Cigars, Imported and Domestic. Trusses and Shoulder Braces. Var-nishes, Brushes, Etc.

We Carry a Full Line of Vaccine Virus and Serums.
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North Dakota Farmers and All Interested:

We are prepared to tan Cattle Hides and Horse Hides for robes and do work in first-class style. Also have extra quality Oak-tanned Harness Leather and Lace Leather. We guarantee our work equal to that done in any city east of the Red or Mississippi River.

35c a pound for Oak-tanned Harness Leather. Try it.
Lace Leather, 50c a pound.

THE LISBON TANNERY, Lisbon, N. D.

CONDITIONS IN COUNTRY LIFE

At the suggestion of President Roosevelt, the Country Life Commission has asked the farmers of the country to meet in their respective communities some time before Saturday, December 5, to discuss the questions which the Commission is studying and to indicate their own ideas of what are the most important subjects for the Commission to consider.

In a letter to the members of the Country Life Commission the President says the farmers should feel "a sense of ownership in the Commission," and that he believes that the Commission should get into the closest possible touch with

the farmers. He urges the importance of holding the meeting before Congress adjourns prior to the Christmas holidays, so that at the time Congress reassembles, early in January, the Commission may have reports of the meetings in hand and may be "in position to advise definitely what should be done."

At the same time President Roosevelt adds two members to the Commission—one member from the South and one member from the far West—Mr. Charles S. Barrett, of Union City, Ga., and Mr. William A. Beard, of Sacramento, Cal.

The letter of the President to Chairman Bailey follows:

My dear Professor Bailey:

I wish at the outset cordially to thank

you for the way in which you have taken hold of the work you are doing. No more valuable work for the people of this country can be done, because no more valuable work for the farmers of this country can be done.

Now, of course, the whole success of the work depends upon the attitude of the people in the open country, of the farming people of the United States. If they feel an awakening interest in what you are doing, they should manifest it. Moreover, it is essential that the farmers, the men who actually live on the soil should feel a sense of ownership in this Commission, should feel that you gentlemen in very truth represent them and are responsive to their desires

Don't buy a stove or range until you first see

How Much You Save
by getting

I Promise You:

"A Kalamazoo
Direct to You"

TRADE MARK REGISTERED

Freight
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Wm. Thompson,
Vice Pres. and Gen. Mgr.

That you **save more money**, and at the same time get a **better** stove or range for the money, when you buy a Kalamazoo, than you can get anywhere else in the world. That's my promise, and here's my hand on it! Will you give me a chance to **prove** to you that I will do what I say?

In the past six years we have sold Kalamazoo stoves and ranges to thousands of readers of this journal—saving them \$5, \$8, \$10, and as high as \$30 and \$35 on a single purchase. But, that doesn't do **you** any good, unless **you** let me quote **you** prices and show **you** what we can do for **you**. Isn't it to **your** interest, then, to get our prices and **catalogue**? When you buy, you want the **best** stove or range you can find, and you want to buy it as **economically** as possible. You want to make every dollar count. Let me show you how. Write for our our catalogue and **prices**, and then compare the Kalamazoo, in both **quality** and **prices** with the best stoves and ranges you can find sold at retail. That's all we ask—just a simple comparison. And it's to your interest to make it.

How You Save Money

You deal directly with the manufacturers. You buy at actual factory prices. You save all dealers', jobbers' and middlemen's profits.

You buy from one of the largest, most modern, best equipped stove foundries in the world—making nothing but the highest grade stoves and ranges, and you get all the advantages which come from manufacturing in large quantities.

You not only save from 20% to 40% in **first cost**, but you also save in cost of operation, in repairs and in durability.

You do not only **save money**, but you get a stove or range of extra quality.

You have no freight to pay. We send you the Kalamazoo **freight prepaid**.

You get a stove or range of the latest design, with all the latest improvements, which will last as long as any you can find **anywhere**, and you save **one-quarter** or **one-third** in the price.

How You Run No Risk

You buy on a 360 days' approval test, and I promise now, in black and white, to return to you every cent you pay if you do not find your purchase in every way exactly as represented. You buy from an established company, with more individual customers than any other stove company in existence.

We doubtless can send you names of many satisfied users of the Kalamazoo right in your own country—people who have not only **saved money**, but have also secured a stove or range of **extra quality**. We pay the freight—you don't have to take even that risk.

Your banker can easily find out about our reliability, and you **know** that the editor of this paper would not print our advertisements, year after year, if we were not perfectly trustworthy. If you appreciate the advantage of economy in buying, you will at least let me quote you prices.

You wouldn't think of buying land or hogs or steers or feed-stuff, without first finding out what the market price is. Why then buy a stove or range without finding out the **manufacturers' prices**?

Let me show you the difference between the **factory** price and the **retail** price. Use the coupon, or

Send Postal for Catalogue No. 485

You can save enough on **one** purchase, to pay for a good share of your season's fuel—to pay your taxes—to get a new gown or a new suit. If you save only \$5, or \$10, I'm sure you can find some good use for the money or you keep in your own pocket.

The Kalamazoo line is complete, embracing stoves and ranges for all domestic purposes, including more than 300 styles and sizes of

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Gas Stoves and Ranges
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Coal and Wood Cook Stoves
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Get our prices and see **what you save**.

William Thompson, Vice-Pres. and Gen. Mgr.
Kalamazoo Stove Co., Kalamazoo, Mich.



All Kalamazoo stoves and ranges are equipped with patent thermometer which makes baking and roasting easy.

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Stove Co.
Kalamazoo,
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and wishes, no less than to their needs. It seems to me therefore that it would be wise to try to get into the closest possible touch with the farmers of the country and to find out from them, so far as you are able, just what they regard as being the subjects with which it is most important that you should deal. This you are already doing by sending out a circular of questions and by holding meetings in different parts of the United States. But perhaps something more can be done.

I accordingly suggest that you ask the farmers to come together in the several school districts of the country so that they may meet and consider these matters. I suggest the school districts

and are intimately connected with those who do the farm work—ministers, schools teachers, physicians, editors of country papers, in short all men and women whose life work is done either on the farm or in connection with the life work of those who are on the farm.

You know better than I what topics you will suggest. How would it do to include such topics as:

- The efficiency of the rural schools;
- Farmers' organizations;
- The question of farm labor;
- The need of good roads;
- Improved postal facilities;
- Sanitary conditions on the farm.

Your purpose is neither to investigate the farmer, nor to inquire into technical

vice, Washington, D. C.; Walter H. Page, of North Carolina, Editor of the *World's Work*; Charles S. Barrett, Union City, Ga., and William A. Beard, Sacramento, Cal.

Again thanking you, and with all good wishes for your success in this great and important work, believe me,

Very sincerely yours,

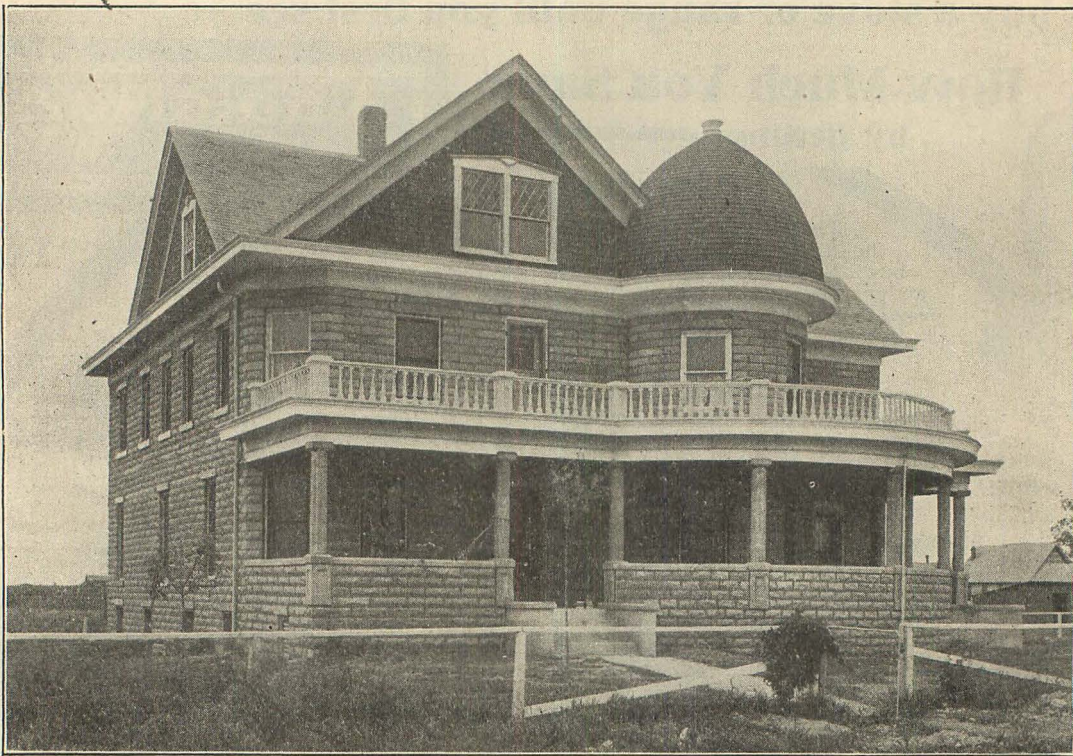
Theodore Roosevelt.

Prof. L. H. Bailey, Chairman,
Commission on Country Life,
New York State College of Agri.
Ithaca, New York.

To which Chairman Bailey replied as follows:

Sir:

The Commission on Country Life is



A Substantial Home in Sargent County.

because the schoolhouse would be the natural and proper place for such a meeting; or they could meet at other customary or convenient places. It would be well if the meetings could be held within the next three or four weeks; that is, before Congress adjourns prior to the Christmas holidays, so that at the time of the reassembling of Congress early in January you will have the reports of the meetings and so will be in position to advise definitely what should be done. I suggest that you ask them to meet not later than Saturday, December 5th; and you will of course use your own judgment whether to summon the meeting by circular or otherwise.

Thruout this letter where I used the word "farmers" I mean also to include all those who live in the open country

methods of farming. You are simply trying to ascertain what are the general economic, social, educational, and sanitary conditions of the open country, and what, if anything, the farmers themselves can do to help themselves, and how the Government can help them. To this end your especial desire is to get in touch with and represent the farmers themselves. The commission now consists of five members. I shall ask two more gentlemen to serve upon it, so that the full membership will be as follows:

Prof. L. H. Bailey, New York State College of Agriculture, Ithaca, N. Y., Chairman; Mr. Henry Wallace, Wallaces' Farmer, Des Moines, Iowa; Kenyon L. Butterfield, President Massachusetts Agricultural College, Amherst, Mass.; Gifford Pinchot, U. S. Forest Ser-

vice, Washington, D. C.; Walter H. Page, of North Carolina, Editor of the *World's Work*; Charles S. Barrett, Union City, Ga., and William A. Beard, Sacramento, Cal. Discussion of the inquiry that the Commission is making, among the people themselves, is the best means of arriving at a clear understanding of what the Country Life problems really are. The Commission gladly welcomes your suggestion that all country people come together to consider those great questions, and hereby requests all persons who are specially interested in the welfare of the open country to meet in their usual gathering places on or before December 5 to discuss the subjects you suggest, or any of the questions on which the Commission is making inquiries.

Copies of the questions may be secured by writing to the Commission on Country Life, Washington, D. C.. The Commission desires that, so far as possible, a general summary or estimate of the discussions in all the meetings places be promptly sent to its office in Washington, so that it may have the benefit of all suggestions in preparing its report.

Very respectfully,

L. H. Bailey, Chairman.

A LIVING FROM TWO AND A HALF ACRES

By A. A. Eastman in *Suburban Life*

I had worked in a shop for twenty-eight years when failing health drove me out-of-doors. When the necessity for seeking a new occupation was thus forced upon me, I decided to take up small-fruit growing, inasmuch as that form of horticulture would furnish, at least, an abundance of fresh air and exercise.

After looking about for some time with the natural caution of a man who could not afford to make a mistake, I finally bought a small place on the outskirts of Dexter, a pleasantly situated Maine village, where the land was high and in a virgin condition, covered with stumps and rocks. There was only two and a half acres of land, too small an amount, in the opinion of most farmers, to produce the barest sort of a living; but I believed that by intensive cultivation I could make small fruits yield sufficiently well to afford a comfortable livelihood. Experience has proved that I was correct.

The soil was black and wet and stony, so that I secured all the exercise I needed before it was fairly cleared of the stumps and rocks. My next move was to install underdrains, in order to free the land of its excessive moisture. The beneficial results were seen immediately, for the land became dry and light, and had the advantage of being filled with plant food, so that I got large crops from the first without being obliged to use fertilizers heavily. I had sufficient sense to begin in a small way, acquiring my experience and increasing my stock of plants at the same time.

In the first place, I set out currants, gooseberries, strawberries and raspberries, together with a number of plum and apple trees. In order to secure a large root growth, it is necessary to set the plants deeply, and of course it is impossible to grow large crops unless the plant food is constantly replenished by using either barn-dressing or commercial fertilizers. I found that plant food must be cultivated into the soil, and used a horse cultivator. In order to keep the weeds down and conserve the moisture,

I adopted the plan of using a heavy mulch of strawy swale, hay, forest leaves, or shoddy. This shoddy came from a woolen mill nearby and was full of soap potash, so that it was very rich in plant food. By a free use of mulch, the sunlight is prevented from reaching the weeds, the result being that the latter do not grow. When a weed is seen breaking thru the mulch, it is a simple matter to lift the latter a few inches and drop it back into place, thus cutting short the life of the weed and saving a large amount of back-breaking work. Moreover, a mulch keeps the fruit clean when the bushes are heavily loaded.

For growing currants and gooseberries, my present plan is to have the rows five feet apart, which allows ample room for cultivating and picking. The trimming of the currant and gooseberry bushes is done in the fall, and the practice followed is to cut out the old canes, as well as some of the new ones, leaving three or four of the best canes to grow, tying them up with reaping twine in order to keep them from being broken down by the heavy snows.

I prefer to set currants and gooseberries in the fall, as when the bushes are transplanted a considerable number of roots are sure to be broken. When fall setting is practiced, the new roots continue to grow until the ground is frozen

hard; the next spring the bushes start growth almost as quickly as tho they had grown in that particular place all of the previous summer. I find that in this way I am able to gain a whole year's growth.

HONEY

Well ripened clover Honey for Sale, guaranteed absolutely pure and of the finest quality. One 30-lb. can 11 1/2¢ per lb.; 2 or more cans 11¢; 12-lb. cans, in full cases of 72 lbs., 11 1/2¢ per lb. Send for price list. Address

M. V. FACEY, Preston, Fillmore Co., Minn.

If you are interested in the West, send 25 cents in stamps for four late issues of *The Pacific Monthly*, containing fully illustrated descriptive articles about dairying, fruit growing, poultry raising and general farming conditions in Oregon, Washington and Idaho.

PACIFIC MONTHLY, Portland, Ore.

Must Be Sold

Within 30 days, 320 acres choice, virgin prairie in North Dakota. \$4.00 an acre down, balance, \$7.00, to suit. Every foot plowable. Good water. Neighboring farmers have made from \$10,000 to \$75,000. One good crop pays for land. Karl Hegg, N. Y. Life Bldg., Minneapolis, Minn.

TEXAS STATE LAND

Millions of acres school land to be sold by the State, \$1.00 to \$10.00 per acre; only one-fortieth cash and 40 years' time on balance; three per cent interest; only \$24.00 cash for 320 acres at \$3.00 per acre. Greatest opportunity; some splendid agricultural land; send 50 cents for Book of Instructions and New State Law, J. J. Snyder, School Land Locator, 137 Ninth st., Austin, Tex. Reference, Austin National Bank.

Here's Delight for a Boy or Girl at Christmas—Fine Fun All Winter Long

There is one gift which will make any boy, or any girl, supremely happy.

It's a gift that lets them enjoy out-of-doors to the utmost.

Boys and girls who are much in the open air grow strong in body, sturdy of limb and sound of lung. Outdoors-and-exercise a-plenty is nature's great tonic and invigorant.

What gives them outdoor fun is what a boy or girl likes most.

Skating is the finest of all Winter fun. The grandest of all outdoor sports.

Then let your boy and

your girl enjoy this fine sport to the fullest.

Get them for Christmas each a pair of Barney & Berry Skates.

The skates that will delight them the most—the kind any knowing boy would himself pick out—the kind boys and girls for three generations have known as the keenest, swiftest, best-of-all skates.

They cost but little. And nothing else would please half as much.

Moreover, the delight they give is not for Christmas Day only. They bring huge fun all Winter long. And for many Winters to come.

For skating is the most ready-at-hand of all Winter pleasures. Where there's water there's bound to be ice, and lots of it. Always our full share of skating weather.

Most any dealer will show you these skates. They're made in all styles. Should your dealer not have the particular kind you want, he will get them for you.

Our free catalogue will help you to choose the right style. Better write for it to-day. Christmas will soon be here.

BARNEY & BERRY
144 Broad Street, Springfield, Mass.



Barney & Berry Skates

It should not be thought, however, that the small-fruit-grower is free from the chastening influence of the insect pests; for the currant and gooseberry worm, a small, green creature, makes its appearance early in the season, and, being remarkably voracious and active, soon strips the bushes of their leaves unless forestalled by the use of poison. My plan is to use a dry powder made of one pound of Paris Green to three pounds of hydrate of lime, which I dust on the plants early in the morning when they are wet with dew, or after a rain. Two or three applications are usually sufficient.

Raspberries are a profitable fruit to raise if the work is carried on properly, and a good raspberry patch will continue to bear for a long time. I plant them in rows six feet apart, and the plants are set out in the spring. Cuthberts have proved the most satisfactory of the red kinds, being hardy, large and finely flavored, so that they bring fancy prices in the cities. I have received \$9.60 per crate of thirty-two quarts, but usually get from \$6.40 to \$7.68 per crate in the Boston markets.

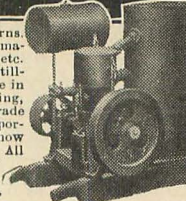
I find that five or six canes are enough for a hill, as when they are thick they make so dense a shade that the berries grow only on the tips of the canes. When there is less shade on the other hand they bear from the tip to the ground. In the fall I cut out the old canes and some of the new ones, leaving the best and the ripest for next season's bearing. The bushes are then tied up and cut back so that they stand about four feet high.

I am always looking for short cuts to the elusive dollar, and have found that I can get more money by raising strawberry plants to sell than by producing the berries; for I do not have the fruit to pick or to dispose of at prices which may be affected by varying conditions.

Many plums and apples are grown among the small-fruit plants. The shade of the trees affords protection to the gooseberries and currants, which are likely to bake in a hot sun, thus spoiling them for use. The plum crop is a profitable one provided the grower can circumvent the black-knot and the curculio. The former is a vital disease, and a fatal one unless speedily checked.

The curculio is a small black bug which stings the fruit and deposits a small egg under the skin where the larvae are hatched, after which the plum falls to the ground, worthless. Jarring the trees by means of a heavy pole, around one end of which burlap or similar material has been wrapped, is the best means by which to get rid of these pests. The trunk of the tree is rammed vigorously in the morning and evening when the curculio are in a more or less torpid state, causing them to fall to the ground. By continuing this practice

2 H.P. Stationary Engine \$29.50
ENGINE ONLY



Runs pumps, cream separators, churns, grist mills, corn shellers, washing machines, lathes, sawing machinery, etc. Uses alcohol, gasoline, naphtha, distillate, kerosene, etc., without change in equipment. Starts without cranking, drop-forged crank shaft, best grade babbit bearings. Other sizes proportionate prices. Free catalog tells how to save half cost of hired help. All sizes in stock ready to ship.

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A new industry that will rival gasoline is that of denatured alcohol for light, heat and power. Five thousand feet of natural gas costs 6 cents per 1,000 feet, containing 94 per cent of methane, will produce 50 gallons of alcohol, 5 gallons alcohol equal one cord of hard wood of one and three-tenths tons of soft coal in heat units. On the basis of 100 horse power 10 hours run one year, alcohol at 30 cents per gallon approximates \$234; coal at \$4 per ton, \$3,400; the yearly saving equals 6 per cent on a capitalization of \$65,000. We propose to your commercial club to establish a new industry, manufacturing alcohol from natural gas at low cost, employing from 10 to 45 men, according to the capacity of the plant. Alcohol is a necessity on land and sea. The automobile and the navies of the world use it, the market demands it. We are ready to negotiate for this new manufacturing industry in your locality. Will you allow us to come in?

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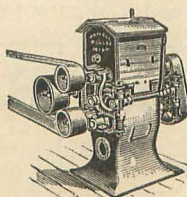
The Companion's Calendar for 1909 — "In Grandmother's Garden," lithographed in thirteen colors.

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THE YOUTH'S COMPANION,
BOSTON, MASS.

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The cost of fattening your stock by feeding ground feed. You can't afford to feed whole grain when one-half the same quantity ground has an equal value. Buy a **HOWELL ROLLER FEED MILL**. Has great capacity, takes little power, very strong and simple, no burrs to be constantly wearing out, lasts a life-time. Grinds Graham and Rye Flour as well as feed. Our Mill will grind twice as fast with same power as the best burr or stone mill made. Your time is valuable. Built in seven sizes to suit any power. Keep your engine busy the year 'round. There is big money in custom grinding. A postal will bring our catalog "F" and prices. Write to-day.

R. R. Howell & Co., Minneapolis, Minn.

at short intervals from the time the blossoms fall until the fruit is nearly grown, a good crop can be secured.

Practically all of the plants, trees, and bushes in my garden and orchard are home-grown, which I consider a matter of profitable economy, as it can be done at a season when there is little other work to be done.

No little skill is required to grow small fruits at a big profit. Altho I have been in this business for twenty-five years, I find that it is still difficult at times to know what is the exact trouble with a tree, plant or vine, or a bit of ground which fails to respond properly to the treatment given it. The products of my two and a half acres are sold in Boston and other cities and at various summer resorts. The currants and gooseberries bring, on the average, ten cents a quart. When I first ship them to Boston, they sell for eight and ten cents a quart; but, when the Massachusetts fruit is out of the way, the price of the Maine crop goes up and fifteen cents a quart is frequently reached. Of course, the fruit is big, clean and put up in attractive packages, which is one of the secrets of my success; for untidy crates and carriers are sure to bring down the price.

Altho Boston is 300 miles from Dexter, I ship all my fruit by freight, as it arrives in better shape than when expressed, for the express companies handle the packages so roughly that the appearance of the fruit often is spoiled. There is a difference of twelve hours in time, to be sure, but the shipping charges are less by more than half, and I get better prices for my fruit when I ship by freight. I make one exception, in the case of the raspberries, which I send by express and take my chances on their arriving in good shape, as raspberries need to be marketed very quickly.

All these matters are details which have an important bearing on my work, but I found out long ago that success in fruit-growing, and especially in marketing fruits at a good price, depends entirely upon the location and the man behind the business.

THE NORTH DAKOTA CORN SHOW

In order to encourage the culture of corn in North Dakota arrangements have been made to conduct a big corn show this winter. Shows similar to the one proposed for this state are held annually at points more distinctly in the corn belt, and are not only a source of enthusiasm but do much to educate the corn raiser and breeder as to what should be sought in producing an article of highest excellence.

Every farmer, seedman, gardener, or other person who can select from his

plot or field ten good, sound ears should by all means send them in to be entered in the show this winter. As no entry fee is charged the only item of expense to the exhibitor is that of express.

Rules

1. Any resident of the state of North Dakota may enter this contest.
2. All corn must be grown within the boundary limits of the state and during the season of 1908.
3. A collection of ten ears shall constitute an exhibit.
4. No entry fee will be charged and all corn will remain the property of the exhibitor. The show will be held in Fargo in connection with the Tri-State Grain Growers' Association January 19-22, 1909 and all exhibits must be in the hands of G. W. Randlett of the Agricultural College before twelve o'clock of the second day of the convention. Express must be prepaid.
5. All exhibitors will be restricted to one exhibit of any variety but may exhibit any or all varieties on the schedule.

Prize List

Class A—Dents

- Golden Dent—\$5, \$3, \$2.
 Northwestern Dent—\$5, \$3, \$2.
 Rustler White Dent—\$5, \$3, \$2.
 Any Other Dent Variety—\$5, \$3, \$2.
 Championship ten ears—\$10 gold medal.
 Championship one ear—\$5 silver medal.

Class B—Flints

- Will's Dakota—\$5, \$3, \$2.
 Mercer—\$5, \$3, \$2.
 King Philip—\$5, \$3, \$2.
 Any Other Flint Variety—\$5, \$3, \$2.
 Championship ten ears—\$10 gold medal.
 Championship one ear—\$5 silver medal.

Grand Championship ten ears—either class—\$20. trophy.

Grand Championship one ear, either class—\$10. trophy.

Note the fact that it is possible for ten

ears to win \$50 worth of prizes. The medals and trophies will actually cost the sum indicated.

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Vol. 10 NOVEMBER, 1908. No. 5

Compared with many parts of the country our farmers have been singularly fortunate in having good crops and good prices. Prosperity prevails among our farmers to a greater extent than in most states. Are you planning to do your share in keeping good times in less favorable seasons?

The fall's work is done, the farmers now have a little leisure for reading and setting down his experience and we hope our readers will give us the advantage of such experience. Tell us what you have learned, observed or changes you will make in your operations for another year. Do not fear that it will not make a good showing. We will fix that for you.

The North Dakota Experiment Station has just issued Bulletin No. 82 giving the results of the milling and baking tests of a large number of wheats, both hard, spring, fife and bluestem as well as of durum. An enormous amount of data is presented and many interesting tables which will be presented in future issues of the North Dakota Farmer.

It is a noteworthy fact that the durums show up well in the milling tests yielding a higher per cent of total flour than do the fife and bluestems. In bread producing quality, however, the fife and bluestem lead.

The same bulletin gives the analysis and baking tests for practically all the commercial flours produced or sold in the state. Every farmer in the state should have a copy of this bulletin which may be had for the asking.

I am confident that the pure food men will be victorious in the bleached flour hearing which was given the millers of the country before the secretary of agriculture. The case presented by the pure food men was a very strong one and I am confident that they will win out in the hearing. The case is now being reviewed by the secretary of agriculture and he will announce the findings in about ten days.

In the bleached flour hearing at Fargo one point was clearly established, namely that millers are grinding durum to the extent of 15 to 18% mixed with hard spring wheat and selling the flour under their best brand or patents. Then why should there be such a discrimination in price against the durum wheats? It looks as tho some deception was being practiced. Under the National Pure Food Law a miller in Minnesota was prosecuted for mixing 18% durum and not truthfully labeling it. How many other mills are doing the same? We hope to find out in the course of time. There is a big field for work with the testing of wheat and flour and in aiding to develop the milling industry of the state. Let us see what can be done.

Never have the farmers had opportunity to put the fields in better shape for another year's crop than this past fall and an early start should be had in the spring. We should not forget, however, that the rainfall has been light and the land is dry. Will this mean a dry season for 1909? It would not be strange for North Dakota was singularly fortunate in 1908 when so many parts of the country were suffering from drought our state was favored in general with timely rains. May we not then expect to have a dry season in 1909? Let us be prepared for such then should it come. We will not be wholly without crops for much can be done to ensure fair crops even in unfavorable seasons. Good cultivation and early planting will prove helpful factors.

BLEACHED FLOUR HEARING CLOSED

Secretary Wilson will Render His Decision at Earliest Possible Moment

Secretary Wilson has closed the hearings on bleached flour, and has given counsel for the millers one week to file a brief in favor of their clients. At the close of the hearing Mr. Elliott renewed his request of Saturday that experiments with extract of bleached flour on lower animals be repealed, as that appeared to be the most vital part of the testimony that had been offered. The secretary stated that he would have to let the record stand

for itself, and could not have the tests repealed.

Dr. A. L. Winton, in charge of the government's food laboratory at Chicago, and Dr. A. S. Mitchell, in charge of the St. Paul laboratory, were today's witnesses. Both testified as to tests of bleached and unbleached flours gathered at various mills, and both agreed that there was a nitrite reaction in bleached flour which, in most cases, was also found, but in reduced quantities, in bread baked from bleached flour.

Both witnesses testified that there was a change in fat due to bleaching, as shown by iodine, but that there was no change in the character of the protein or in the gluten as the result of moderate bleaching.

Mr. Elliott, in cross-examining Dr. Winton, declared that the witness had not answered squarely any question he had put, and abandoned an effort to get information from him.

At the conclusion of the hearing Secretary Wilson thanked all witnesses for appearing and was in turn thanked by Mr. Elliott on behalf of the millers for his patience and fairness in giving them an opportunity to present their evidence.

The secretary announced that he was anxious to dispose of the matter at the earliest possible moment, and indicated that he would render a decision within a reasonable time after a brief on behalf of the millers had been filed.—Fargo Forum.

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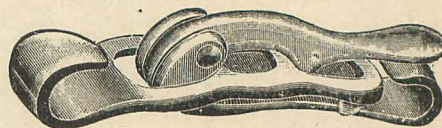
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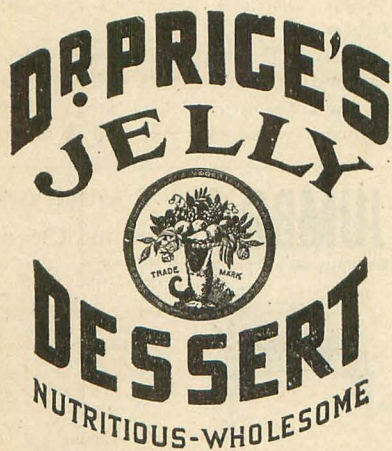
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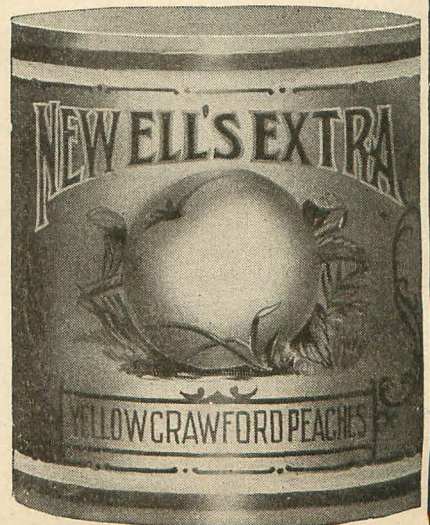
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AT THE AGRICULTURAL COLLEGE.

CLOVER CULTURE

W. R. Porter

Results on the Demonstration Farms

When the demonstration farms were started in 1906, clover was put in the rotation on five of them. In all cases it was planted with a nurse crop of durum wheat, oats or barley. In all ten plots were sown in the spring of 1906. Two on each of the five farms located at the following places: Beach, Bismarck, Ross, Granville and Lakota. Two of these plots at Lakota made a good stand, the other eight were very poor and none of them produced a crop of hay in 1906. Five of the plots were plowed down in the fall of 1906, including one of the good stands at Lakota, in order to have the following crops come in their proper order in the rotation. The plot left at Granville produced two bushels of seed, but otherwise it was a failure.

In 1907 ten more plots on the different demonstration farms were sown to clover and all had a nurse crop of wheat, oats or barley. One plot was sown on each of the farms mentioned above and five plots were sown on new farms located at Sanborn, Page and Bathgate. In the fall of 1907, three of these made good stands; one at Lakota and two at Bathgate. Three are medium stands, one at Sanborn and two at Page. Four at Beach, Bismarck, Ross and Granville respectively were total failures, tho they all started well in the spring. In the fall of 1907, the plot at Sanborn, one at Page and one at Bathgate were plowed up. During the winter of 1907-08, the clover at Page and Lakota winter-killed, probably due to drought and lack of snow in winter. The plot at Bathgate produced one thousand pounds of hay per acre the latter part of June. The second growth was very luxuriant, completely covering the ground to a depth of two feet by the latter part of August. This field threshed from three to four bushels of No. 1 clover seed per acre, which is a very lucrative crop at \$12. per bushel. The roots of the clover were covered with large numbers of large tubercles.

In 1908 eight new plots were sown with nurse crops, one on each of the farms previously mentioned. But four have survived the summer tho the clover germinated well in each field. One is an excellent stand at Bathgate and three are medium stands of healthy looking clover at Lakota, Page and Sanborn, respectively.

In Ross, Granville, Bismarck and Beach, the clover was a total failure this year, tho it germinated well in the spring the plants were sturdy and healthy until

the first of July. At that time the hot weather and drought set in. The nurse crops being heavy and deep rooted seemed to take the water all out of the soil to a depth greater than the roots of the clover extended. The result was that the clover plants died for a lack of moisture, tho there was enough water to mature a heavy crop of wheat. Mr. Schollander often stated that he noticed clover doing well in the alleys and at the ends of the plots where the nurse crop did not shade the ground or pump the water out from below. The writer has noticed the same thing this summer, particularly at Beach and Lakota. In the fall of 1907, Mr. Schollander made the following statement in his first annual report on the Demonstration Farms: "I wish to emphasize that another plot was sown to clover alone at Beach this spring, which produced a heavy luxuriant growth, while one sown with a nurse crop was a failure."

W. R. Porter, Superintendent of the North Dakota Demonstration Farms, has this to say about clover growing in this state:

How a Stand of Clover is Obtained

Prof. Thomas Shaw claims that clover can be grown successfully from the Red River to the Montana line, and from South Dakota as far north as the Canadian boundary. No doubt, Prof. Shaw is correct if the right method of growing clover is practiced. Such a method has not been worked out yet but all the indications are that it is to be found in the practice of growing clover without a nurse crop on land that has been previously manured. Perhaps the best possible condition to grow clover would be to put it on corn or potato land which had been manured with a manure spreader which had about twenty-five pounds of soil evenly scattered on each load of manure from a clover field that is well inoculated with clover bacteria. This method gives a seed bed that is in the right mechanical condition, has an abundant supply of water stored up in the soil, contains an abundance of available food, and becomes thoroly inoculated with the special bacteria without which clover cannot do well.

If a man wants to make big money and at the same time increase the fertility of his soil, if he is west of the Red River Valley, he should sow a few acres of clover without a nurse crop on soil that has been manured, preferably corn or potato ground. If weeds come up, he should cut them with the mower with the bar set high enough to pass over the clover plants beneath. The second year the clover should be cut for hay the latter part of June and the second crop for seed. This crop should be cut about

the middle of September and can be threshed in an ordinary separator fairly well if corrugated teeth be used, and the cylinder be set up tight. To get all the clover seed and clover straw it should be run thru the separator twice. Clover has been yielding from two to six bushels per acre in the state, and when it is worth about \$10 per bushel, it actually beats dollar wheat as a paying crop, and at the same time it increases the fertility of the land. Any farmer in the state west of the valley will make no mistake if he tries a small field of medium red clover, without a nurse crop in the spring of 1909.

Conclusion. These experiments with clover on the Demonstration Farms seem to indicate that it is not wise to sow with a nurse crop in North Dakota outside of the Red River Valley. Even then nurse crop that comes off the ground quickly and does not offer too heavy shade, such as barley should be used.

President Worst has been appointed by Gov. Burke to act as the official representative of the state at the launching of the battleship North Dakota to take place at Boston, Nov. 10th. On his return he intends to stop in Washington where the American Association of Agricultural Colleges and Experiment Stations will hold a meeting Nov. 17.

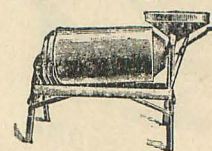
George H. Whiting, the well known nursery man of Yankton, S. D. recently visited the college and talked to the horticulture class.

The Nebraska Experiment Station has secured thru Prof. Waldron seed potatoes from Larimore, Langdon, Walthalla, and Fargo, in order to carry out tests as to the difference in quality between northern and southern grown tubers.

Dean J. H. Shepperd has been selected to conduct the students judging contest at the International Live Stock Show at Chicago, which this year will be held the

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latter part of November, North Dakota does not expect to send any men to compete in this contest, but a team of five men will try for honors at St. Paul.

The State Board of Pharmacists in recent session at the A. C. granted five applicant papers as registered pharmacists and gave assistants' papers to six others.

The Agricultural Club held the first meeting of the fall term last Saturday evening. This being the tenth anniversary every effort was made to secure a strong program. Dean Shepperd of the Agricultural department was the principal speaker of the evening.

The club was organized for the benefit of the Agricultural students to familiarize them with some of the most important subjects of debate, and also to give them parliamentary training.

This club is an unusually active organization, made up chiefly of Farm Husbandry students, altho agricultural men from any department of the school may enter its membership. It takes up and discusses practical farm questions, during each year of its ten years' growth it has gained in strength and influence, until now it is one of the most valued of the student organizations.

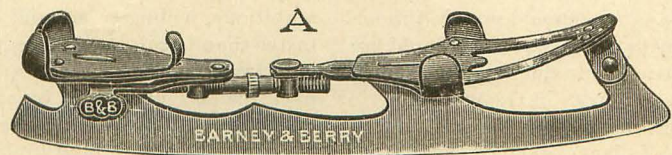
Prof. Bolley's speech before the Polytechnic Society upon the retardation of weed growth by means of chemical sprays, was most interesting and timely. While along certain lines the experiments begun over a decade ago are not yet concluded, along others, notably that of the use of sprays for the killing of mustard and kinghead, the results are such as to warrant extensive field use. Sprayers capable of covering from 30 to 40 acres per day are now on the market, and the coming spring will see many Dakota farms provided with this latest means of fighting weeds.

Bulletin 74 of the Dickinson sub-experiment station published last year by L. R. Waldron, the superintendent is a very valuable guide to homesteaders in the western half of North Dakota. The bulletin treats largely of grains, grasses and woody plants, that is, it gives suggestions for the preparation of the seed bed, the rate of seeding and cultivation of small grains and grasses that will yield the best results in the semi-arid portions of the state. It also tells the kinds and how to successfully grow, shade trees, shelter belts, ornamental hardy shrubs and small fruits. It contains a valuable formula for the poisoning of gophers and prairie dogs, and gives data on weather conditions in the western part of the state. This bulletin may be had free of charge by addressing the Experiment Station at Fargo, or the author at Dickinson, N. D.

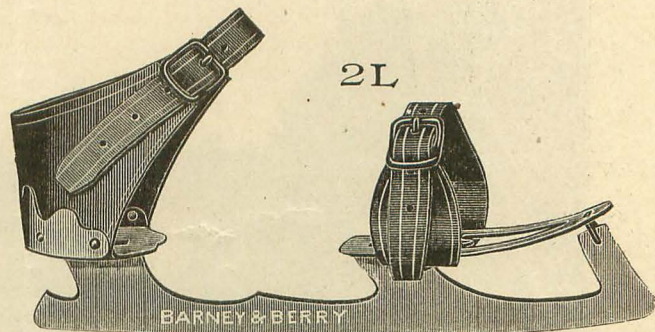
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ADDRESS

The North Dakota Farmer,

Lisdon, North Dakota

Livestock Department

PROF. W. B. RICHARDS, Editor

FOR DAIRY AND STABLE

By Dr. David Roberts, Wisconsin State Veterinarian

Feeding Milch Cows

Milch cows require different feed from beef cattle. You should not feed much fat forming foods as your cows would lay on fat instead of producing milk. Feed more silage or roots in the winter.

Daily feed for a thousand pound cow: 40 pounds of silage, 7 pounds clover hay, 8 pounds of grain. The cows that are soon to freshen should be fed on succulent feed, such as silage or roots, bran,

The heifers should not be bred until fifteen or eighteen months old.

Paralysis of the Hind Part or Azoturia in Horses

This is a disease which comes on suddenly and is due to an acid in the blood. It sometimes affects the front parts as well as the hind parts, and the animal may come out of the barn feeling fine, ambitious, willing to go, and often goes faster than usual, but before it has gone very far it begins to lose its speed, hangs back, sweats profusely, breathes hard, and begins to knuckle over behind, gets lame in one or both hind limbs and in a short time is unable to go any further and often falls helpless on the road in a paralyzed condition.

BREED, TYPE, INDIVIDUALITY, AND MILK PRODUCTION

Four distinctly dairy breeds of cattle have gained some considerable distinction on this continent, the Holsteins, the black and white cattle of Holland; the Ayrshires, which originated in the county of that name in the southwestern part of Scotland; the Jerseys, coming from a small island in the English channel, and the Guernsey, with practically the same origin as the Jersey. In addition to these we have a number of other dairy breeds, but the four noted are the ones most largely used for dairy purposes. The Shorthorns of course must not be excepted. Tho classing as a beef breed, more Shorthorns perhaps, and Shorthorn grades, are used in the dairy business in Canada than any other breed, the Holsteins come next, the Jerseys third and for fourth place there is little to choose numerically between the



Poultry House at the Agricultural College.

linseed meal with a little oats. Keep the bowels open and do not feed very heavy on grain just before or after calving.

After calving, give bran mashes and warm the drinking water for a few days. Allow the calf to suck for about two days and then feed the mothers milk from a pail for about two weeks, about three quarts twice a day; after that reduce it with skim milk or warm water so that at the end of the fourth week the calf will be getting all skim milk or half whole milk and half warm water with some reliable stock tonic to aid digestion. Keep a supply of good clover or alfalfa hay within reach and also some ground oats, with a little linseed meal mixed with it.

After the calf eats the ground feed, gradually get him used to eating whole oats, as this is the best feed for him up to six months old.

The proper thing to do is to place him on a stone boat and haul him into the nearest barn, place him in a large, well bedded box stall or a barn floor where he can be turned over often until he is able to get up. Medicines should be given of a laxative nature and that will allay pain and counteract the acid condition of the blood. An injection of warm water should be given to unload the rectum of its faeces so that the animal can if possible urinate. If unable to do so, the urine should be drawn. A stimulating liniment or a mustard plaster should be placed over the hips and the body should be kept comfortably warm. The animal should be given plenty of drinking water with the chill taken from it, a very little, if any, feed should be given before he gets up and he should be fed on bran mashes and a very little hay after he is up until a full recovery has been brought about.

Scotch and English channel cows. There are some other beef and dairy breeds used to some extent for milk production here, the French Canadians for instance, the Dutch Belted, the Red Polls, the Devons and the Kerry cow from Ireland. But those five and their grades, include most of the straight dairy stock in the country at large.

The inquiry is pertinent—which of these breeds is the most economic producer? Given the same feed and the same conditions generally, which one of them would be expected to produce most profitably? This question has been the subject of a good deal of experimental inquiry at the various Canadian and American stations, in Great Britain and in Europe, but seemingly there is so much variation in results that no unqualified conclusions can be reached. At one place one breed will be found superior to another, while at the next

test an opposite result will be obtained, the results going generally to show that there is more variance in the production qualities as between individuals of the same breed, than there is between the average of the breeds themselves. At the Cornell, New York, station it was found that this variation between individual cows of the same breed was greater in milk and butter production, than between cows of the different breeds. At Connecticut, Wisconsin, and other American stations, results very similar were obtained. Canadian experience along the same lines is very similar. With regard to the quality of the milk the breeds were arranged, Angus, Hereford, Shorthorn grade, Ayreshires, Shorthorns and Ayrshires. In New York, in relative profit from milk, they were arranged, Holsteins, Shorthorn, Ayrshires, Guernsey, Jersey and Devon. In the relative profits from butter the breeds stood, Guernsey, Jer-

One is sparsely fleshed, angular in outline, the skeleton standing out rather prominently, long and thin in the neck, sharp in the back, in the form converging to form what are called the wedges, while the other is a well fleshed individual, and smooth, the long framework as invisible as possible, short necked, thick backed, parallelogram like in outline. It is probable that in the majority of cases a cow that conforms to the dairy type more or less closely, will make a more profitable milk producer than one that runs to beef in general conformation, but this does not hold true in enough cases to make type an infallible index, or even a fairly good guide, to the milk producing abilities of an individual.

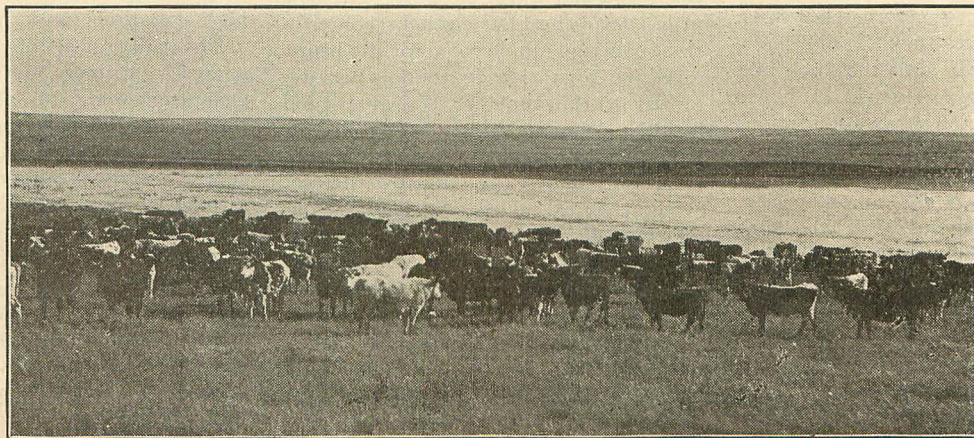
This question of type, like the question of breed, has been the subject of no little experimental inquiry and observation, but results do not indicate that very much has been accomplished in the way of arriving at anything definite by

were valuable mostly for the emphasis which they combined in placing upon the individual, and the basis which that established fact gave for the proper selection of economic producers. Once the lesson was learned that the only way to judge of a cow's ability was to weigh her milk and make fat tests at frequent intervals, the way was cleared for systematic work in breeding up in all breeds and grades a class of high producing individuals.—Farmers' Advocate.

FOUNDING A PUREBRED FLOCK

Howard A. Chandler, in American Sheep Breeder

By looking thru the agricultural papers, hearing your neighbors talk of their experience with different breeds, and noticing the exhibits at leading fairs, you will be enabled to decide upon the



On the Missouri Slope.

sey, Shorthorn, Holstein, Ayrshire and Devon, while in relative profit from cheese they ranked, Shorthorn, Guernsey, Jersey, Holstein, Ayrshire and Devon. These experiments and hundreds of others conducted at various stations, demonstrated clearly that the relative value of the breed in milk for either butter or cheese varies somewhat, but the variation is due in the largest measure to the individuality of the animals, the period of lactation, the age of the cows, the method of feeding and handling, that breed is not the most important factor in selecting profitable stock, that cows should be selected not because they are of any particular breed, but rather on their individual ability to produce milk and butter from the food consumed.

Likewise, the question of dairy type has been one of considerable investigation. When one compares a typical individual of any of the dairy breeds with a typical representative of one of the beef breeds, a number of distinct differences are noticeable in the conformation and general form of the two animals.

which the milk producing abilities of a cow may be determined by the shape of her body, her size, form or general appearance. Like the comparative tests made to determine the most profitable breed, this line of inquiry has failed to establish anything definite regarding type, but has demonstrated pretty clearly that individuality of the cow, not the breed she belongs to, or the type she conforms to, is the important thing concerned in her ability to produce profitably, that the only infallible rule by which the milking abilities of a cow and her value in either cheese or butter production can be determined, is by a test of the individual herself.

By individuality is meant the distinctive characteristics which distinguish one individual from another. By individuality in cows is meant the qualities or properties that pertain to them by means of which they are distinguished in production from others in their own or different breeds. The prolonged tests undertaken to determine the influence of breeds or type on milk production,

breed you prefer. All over the American continent, the Shropshire is found in nearly every section, and we doubt if you can do better than to breed these cosmopolitan sheep. Sufficient knowledge, energy, and perseverance, however, will lead to success with any breed, but it might bring larger profits from some breeds than from others. Competition is much stronger in Shropshire circles than in those of any other breed, but general sales are much greater accordingly. The high position of the breed has been won by real merit and good results it has given under all conditions. The breed for which there is the widest and greatest demand, is the one with which you can do the largest and most profitable business; and if you have previously raised grade sheep you will have full general knowledge of matters pertaining to raising pure breeds.

If you have never handled sheep of any sort, you should give it some study previous to purchasing; altho it is folly for anyone to say that a person who has not had experience with sheep should

not start with a small flock; because we all have much to learn in whatever business we may enter.

A good plan is to get into correspondence or conversation with some leading breeder to learn his methods of breeding, feeding and general management. That would be gaining knowledge from the experience of others, which is one of the great arts of life. Most great successes trace back to the foundation of high ideals; therefore one of your first determinations must be to produce sheep with superiority. Some have advocated that the proper way to found a flock is to buy a few low-class, cheap, registered, ewes, and breed from them. Of course, in that way the cost per head is very small, but we think it is the very worst way of founding a flock, because such beginnings are usually very discouraging ones to the owner and do the sheep business more harm than good. These men give up and say they do not care for sheep, while if they had started with a fewer number but with exceptional merit, they would have been better pleased with the flock and also received larger returns. A house will not stand on a poor foundation; good crops will not come from poor land; nor can you build up a high class flock from breeding sheep of common quality. Experience teaches us that the first thing for a beginner to do is to build up a ewe flock of unquestionable merit, both as regards individuality and breeding. Get thoroly fixed in your mind the characteristics of a good mutton sheep; also true Shropshire type; then you are ready to visit some old-established and reputable flock. You will find that the best breeders will be only too pleased to show you thru the whole flock at any time, and answer any questions you may wish to ask. Purchases from such old flocks will give you better results than if you were to buy a few at different places and end up with a lot presenting three or four different types.

It is sound policy to begin with a small flock of undeniable breeding and merit, rather than with a larger one of inferior animals. The great object should be to procure a uniformly high-class bunch of ewes with good pedigrees.

The general make-up of a sheep cannot be studied too closely, and it is well to have a system in your examination, because when purchasing a foundation flock, you should carefully examine each individual, rather than giving a simple glance over the bunch. Commence examination at the nostrils, which should be well extended. Nose, face and whole head should be short and broad; neck short, thick and firm, and smoothly blended to shoulder. With your fingers together, the back can be examined for both straightness and covering of natural flesh. It should be straight from top

of shoulder to loin, and with as little droop as possible on to the tail-head. By natural flesh we mean the covering of lean meat on the bones. A well-covered back is firm, and does not feel bare to the touch like a poor back.

The loin should be wide and thick, and the tail-head wide and well set up. A noted breeder once said, "A sheep's hind-end should be like two pears placed side by side." That comparison is a good one, because in that case, there would be so much meat between a sheep's hind legs that they would have to be wide apart, and the outside flesh covering would also be very good. It is well, then, to handle the back a second time, because the sheep may be standing in a different position. Also notice the spring of rib, because when the ribs come immediately and well out from back bone, it increases the width of back and also gives more room for the internal organs. Then examine to find the depth and width of chest, because a wide, deep chest strengthens constitution by giving ample room for the heart digestive organs, etc., to do their required work properly. To give good results, either in the breeding pen or feed lot, a sheep must have strong constitution, and the narrow-chested, straight-ribbed sheep rarely, if ever, prove profitable. Straight, strong legs are a necessity under breeding sheep, and the pasterns must be strong; and altho this is more important with rams, it affects ewes to the extent that they may drop rams for breeding purposes. When the sheep has been examined for mutton form, constitution, legs and feet, the fleece should be carefully looked thru. A Shropshire fleece is fine in texture, dense, bright, of fairly good length, and with a uniform close crimp.

Fleeces can hardly be described, but when you see and feel them, side by side, the desirable ones can be easily selected. There should be a dense wool covering on the belly and inside the legs, as well as on the body, because this not only increases weight of fleece but it is protection from all troubles due to lying on wet ground. There should be no dark fibre in the fleece and as little as

possible on top of haed. Wooling should extend well down on legs, and in ewes strict femininity must be sought for.

It is well to place much stress upon the breeding, and that is one advantage obtained by going to old flocks. Pedigree is simply the record of an animal's ancestors, and a sheep whose sire, dam, grandsire, grandam, great grandsire, great grandam, etc., have been noted with exceptional merit, will surely give better results in the breeding flock than a ewe whose ancestors have been practically unheard of or unknown altogether. Successful breeding of live-stock is a life work, and the foundation must be laid slowly and well. By founding a flock with judicious selections from the best breeders, the greatest factor is achieved: a sure and certain basis upon which to build up a flock of the highest class. Many breeders have never been able to eliminate the results of a bad start with the ewe foundation, despite the fact that they have used high-class rams for many years.

The bad qualities of the ewes have appeared repeatedly in the lambs; one generation may be nearly free from them, and then they appear with vexatious persistence the next and in all future. Too much importance cannot be attached to making a correct start, because the old law, "like begets like," cannot be done away with, and if a start is made with ewes of poor quality, it may take your life time to eradicate those undesirable characteristics. If you desire to achieve success as a breeder, you must take time and exercise good judgment in the selection of the ewe flock. It doesn't matter if you do not get so many in number; their progeny will soon make the flock large enough.

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Whether the foundation sheep are bought by private treaty or at the public sales, the right sort must be selected, even if an apparently high price has to be paid. We say apparently because the best specimens of the breed rarely prove to be dear in the long run, while second-rate ewes are not cheap at any price, and may be a constant source of dissatisfaction. High individual merit, strength of constitution, and a thrifty condition in the sheep purchased are points of great importance. After having obtained the desired ewes, the first few years should be spent in improving the ewe flock. When it once possesses uniformity and true type, the great difficulty has been overcome, and by judicious mating, a long and successful show and sale yard career may be counted upon.

STICK TO THE SHEEP

Don't get a notion that because there is a depression in the sheep market at the present time that it is time to quit the business. On the other hand it is just the time to begin. For several years sheep have been abnormally high and many predicted that this too would come sooner or later, but it arrived a little ahead of time on account of financial conditions last year. However, it is here and the next best thing to do is to make the best of it. If you are not in the sheep business, don't wait a minute to get in. You may never get a better opportunity. The market is way down so far as the fat stuff is concerned, and breeders are willing to part with their goods at bottom prices. You can't make money easier or faster than in sheep unless you are running a get-rich-quick scheme, and that is too risky. If you have sheep, keep them and get more, and if you haven't any, look up the ads in this paper and buy the kind you want. A presidential year generally has a softening effect on the markets for both mutton and wool. For some reason the tariff tinkers always like to meddle with the sheepman's business because they, as astute politicians, think they have to meddle with something. There is not much danger that the next congress will do much to the wool tariff, tho there are always timid ones who are afraid, and so we have a contingent waiting till they can find out. The sheep industry was never on as solid a footing as it is today. There are better sheep in the country than ever before and there are more people in the country to eat the mutton, which is also improved in quality in the last few years. The high prices for the past two years have been a good thing, for they created a wider demand for good blood and gave sheep raisers a chance to get rid of old stock

at a good price and put in new ones that were better.—Shepherd's Criterion.

ABUSES OF THE FARM DAIRY

Extracts from Address of H. C. Mills, Purdue University

At the recent normal institute for inspectors, held at Purdue university, a very helpful talk on the farm dairy was given by H. C. Mills in charge of the dairy field work of this college. Extracts from his interesting speech follow:

On the average farm of Indiana, where it is not the intention to do extensive dairy work, we find many cows that are cross-bred animals.

They have been bred with the idea of producing a dual purpose, or farmer's cow, as they are sometimes called. These cows are usually a cross between some beef breed and a breed of dairy qualities, and as a result we have neither but a mongrel whose good qualities are hard to discover. We have a cow that not only does not produce enough milk and butter to pay for the care and feed she receives, but produces a calf that does not develop sufficiently to pay for the milk and the feed it receives. There have been cows that produced a fair amount of milk and butter whose calves were better than the average dairy calf, but it must be understood that these are exceptions and are hard to find.

Feed and Shelter

The feed and care many cows receive quite frequently consists of blue grass pasture or clover pasture in summer, and corn, hay, straw and corn stalk pasture in winter. The milking is done out of doors most of the year and the cows are only stabled during severe weather.

The milking of cows on many farms is considered a disagreeable sort of work, a drudgery, and for this reason is left for the women of the farm. Milking is considered a dirty job. Because of this, dirty clothes are worn and the hands are not washed before milking and little thought is given to the fact that we are handling an article of food. There are people who even follow the practice of wetting the hands with milk. This is nothing more or less than washing the hands with milk and al-

lowing them to drip into the bucket for someone to drink. After milking the milk is set in crocks for the cream to rise and quite frequently the crocks are set in the cellar.

Making the Butter

The cream is skimmed from the milk and placed in a jar behind the kitchen stove. When the jar is full of cream it is dumped into a dash churn, which breaks the grain of the butter, making it salvy and greasy, and churned. The butter may come within a few minutes, or hours, depending upon the temperature of the cream, which has not been considered by the one churning.

When the butter comes the buttermilk is poured off and the butter placed in a pan or bowl and worked with the hands or paddle. The buttermilk is worked out of the butter as much as possible and it is salted, and printed in various shapes, when it is ready for market. The butter is taken to the store and sold quite

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often for less than it cost to produce it. The storekeeper dumps it into a barrel and ships it to some renovating factory.

Improve Quality of Herd

Has this been a profitable operation for the farmer? Has it paid for the time, trouble and expense? We think not. Would it not be more profitable to keep one or two good cows than the four or five poor ones we are keeping at an expense? One or two good cows would supply the table with milk and butter and less feed and care would be required. If interested in beef production get beef animals, but do not expect cows that are not real beef animals to help you to make a success of beef production.

If interested in milk and butter production do not expect the best results from cows that are not real dairy cows. This is not an argument for keeping less stock on the farm, for I believe nothing to be more foolish than hauling fertility from the farm in the form of grain and returning nothing to it, but it is a plea for keeping good paying animals, whether it be one or 50, and giving them proper care and attention.

Does it not seem strange that country butter does not command the same price as creamery butter? The maker of country butter has all conditions within his control, while the creameryman must take the cream as it comes to him, be it good or bad. There are three reasons for this condition: First, country butter is not uniform and as we have many lots we have many kinds of prints and colors of butter, this makes it hard to sell; second, there is no grading of country butter, but one price is paid for it all, be it good or bad; third, ignorance of methods in making good butter.

How to Improve Conditions

There is but one remedy that the farmer can bring to bear upon this condition and that is, learn to make good butter and establish a trade or demand for this butter. To make good butter be clean. Do not expect to make good butter by setting the cream in a jar behind the stove until it becomes yellow with age. Keep your cream cold until you have enough for a churning, but it cannot be held long; then warm it to somewhere around 60 or 65 degrees and allow it to ripen. When sufficiently ripe cool to the desired churning temperature, which should be as low as possible and still churn within a reasonable length of time. Be sure to wash the buttermilk from the butter. This can best be done if the churning is stopped when the butter granules are the size of peas. Dis-

tribute the salt evenly and get it dissolved. Be careful in working not to get a greasy, salty piece of butter.

To establish a trade for your butter put it in a neat package and have it marked with the name of your farm or your name, in order that the consumer may learn to know it and call for it.

LIGHT HORSES VS GAMBLING

Some of the light horse breeders of the country are bemoaning over the future of the business since the anti-gambling ordinance in connection with race tracks went into effect in the East. Some of the race horse breeders have gone out of business, some have shipped their horses to South America and Europe, where gambling still flourishes in connection with the race track, and others are just simply kicking. For our own part we should say wipe out the whole horse breeding business if the price of its existence is paid by the gamb-

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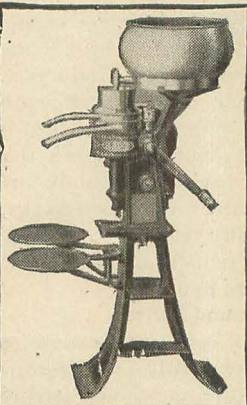
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ling interests of the country. Race track gambling means embezzlers, forgers, thieves, and wrecked homes. This is too big a price to pay for the perpetuation of the American race horse, and if it is acknowledged by the horsemen that the only way they can keep in business is to continue gambling, we would say wipe out the race horse breeding business. As a matter of fact, we never saw much but disappointment connected with race horse breeding. When a man goes to breeding race horses, whether he be in the city, the small town, or the country, he seems to get in a class by himself, and unless he is an unusually successful breeder, goes broke sooner or later, because it is only a small proportion of the race horses that are bred and turn out consistent winners. There are too many "needs" to make the business profitable. As far as the farmer is concerned, we believe there are just two classes of horses that he can profitably figure on raising. One is the draft horse that has size and draft conformation, and the other is the road horse. The draft horses of the country can well be raised by the farmers from brood mares that do the farm work. This means keeping a good class of mares that weigh from 1400 pounds up, and breeding them to the best class of draft stallions. The breeding of roadster horses is more of a business in itself, and comparatively few farmers find pleasure or profit in the work. It means keeping a class of well bred driving mares and breeding them to Coach, Hackney or well put up standard bred horses. The roadster is not usually the result of mixed breeding, however. We believe there will continue to be a good demand for both draft horses and driving horses that show fair speed and good stylish conformation. It is more trouble to raise, handle and train the driving horse and there is not as great a profit as in handling the draft horse. The farmer can well afford to watch both these branches of horse breeding. As for the race horse business, he had better let it alone, and not waste his time or energy in promoting or sympathizing with a business that is self acknowledged a parasite on turf gambling.—The Farmer.

SOME BUGBEARS IN HORSE BREEDING

Improvement of an equine stock calls for no fancy equipment, tho amelioration of farm buildings usually follows betterment in the quality of the horses which work the land. It is a quite general belief that to breed pure-bred horses or to improve common stock one must have big red barns and fancy fences,

and some men have been deterred from prosecuting the work of grading up because of a conviction that such equipment is a necessary part of the business. The fact of the matter is that improvement of any kind of stock originates and persists in the brain of the man who starts out on the up grade.

It is just as easy to construct an adequate shelter of rough boards and battens as it is of the most expensive clapboarding. The difference between the two is in the brain of the man who does the work. It is well known that Lord Clifden, winner of the St. Leger and one of the best race horses Great Britain ever had, was foaled in an old hay-shed, which his owner made weather-tight and that was about the only shelter the youngest knew until it was time for him to be broken.

This thinking that pure-bred stock must be coddled and petted is all wrong. This journal has preached incessantly against improper methods of stock-rearing. It has deprecated undue pampering as it has the ancient but still too prevalent system of straw-stack and barbed-wire sheltering. All that is needed is a weather-tight shelter, and thanks to the enterprise of the ready-roofing makers the furnishing of such habitations for farm animals is now a simple and cheap process.

The mere payment of the service fee for an imported stallion to the farm mares is only the placing of the foot on the very lowest rung of all. Money so paid out has sometimes been literally wasted, for the simple reason that the man who paid it had not fully considered his subject and had not within him the true germ of success as a breeder. As in corn-growing the purchase of a bushel of pedigreed seed will not make for success unless the subsequent care of the crop is adequate in every way, so the mere breeding of mares to pedigreed stallions will not suffice.

Deterioration of buildings generally goes with deterioration of stock. An instance is recalled in which a farmer in southern Wisconsin decided to move west and take up more land to provide for the future of a growing family. There was money enough to put up a handsome big barn with plenty of room for hay and stock and other needful shedding as well. The stock first housed in those buildings—brought from the Badger commonwealth—was good, a pleasure to behold. All around, however, on neighboring farms, were sod and straw stables, little old shacks and in most of them very lowgrade animals. The big bank barn stood out as a landmark for all the country round. Then somehow there came a change. The place was not "picked up" as it once was. A loosened board was not tacked in place as promptly as at first. Soon,

a little paint was needed here and there and it was not forthcoming. The old horses and cattle preserved their excellence until the great conqueror of all got in his work. Somehow or other the young stock was not as good as the old and when a stallion died at the age of 21 years, the owner declined to pay out the money to put one as good in his place.

What was the trouble? Lack of association—nothing more, nothing less. The bacteria of the scrub, of the most rigid skimping of money expenditure, was abroad in the land. Other folks did not buy stallions costing up in the hundreds of dollars. Why should he? They seemed to get along nearly as well. It was not just like it used to be back on the other side of the Mississippi. Here no one else had good stock as they all had there. It was uphill business anyhow, and the new conditions were not like the old. Surely we can sympathize with this farmer of a by-gone day, but he merely failed to grasp the opportunity that was laid temptingly in his grasp. Even his big red barn could not save him. He was merely a follower, not a constructor. That is the essence of it all.

By all means let us have the best possible farm equipment, but let us not consider it the cause of improvement and success, not at all a necessity of the onward march of improvement, but rather as an indication that all is well.—Breeder's Gazette.

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MISCELLANEOUS

Holiday Prices began at **Envilla Stock Farm** Nov. 1st and close Jan. 1st. Write them for a list. **Cogswell, N. D.**

Poultry Department

PROFITABLE POULTRY RAISING FOR THE NORTH DAKOTA FARMER

By O. W. Dynes, Delivered before Tri-State Grain and Stock Growers' Convention, Fargo, 1908

(Concluded from October Issue.)

Selection of Stock

Breed Selection. No one breed of fowls can be recommended as best for North Dakota or any particular locality within the state. And yet, I believe, that the most profitable farmer's fowl is one of the general purpose type or a fowl that combines both the egg and meat producing qualities. The selection of one of the varieties of the Plymouth Rock, Wyandotte or Rhode Island Red breeds will be found satisfactory. As to the choice of the particular variety within the breed, individual tastes differ, but whether the birds shall be black or white, solid colored or particolored, is not a material consideration from the standpoint of economical production.

Selection of Breeding Stock. The common practice, as followed in the average farmyard, of using the entire flock as breeding stock has little to commend it. Eggs from all of the birds, good and poor alike, are used for hatching purposes. The logical result of this practice is that you bring the size, weight, health and stamina of the progeny down to a level with the average specimen of your flock. As far as improvement in the flock is concerned you remain either at a standstill or else deterioration takes place. Use no undersized, immature or anything but the most healthy specimen in the breeding flock. Select a breed that suits you and above all don't mix the breeds. If you have a grade flock and do not care to part with it use pure bred males of some good breed each year and stick to that breed. Be careful of too close in breeding and to the farmer whose flock runs at large I would advise against the use of cockerels of his own breeding or the use of the same males two years in succession. If these few simple rules are observed you will raise fowls of greater stamina, better health, larger size and increased fecundity.

General Management

No flock of fowls will care for themselves and produce a profit. The *personal equation* enters largely into the poultry business and much of the success of the poultryman depends on care and attention to details. A devotion to

all phases of the work is essential to the best success. Punctuality as regards the time of feeding; keeping the house properly ventilated and thus having the walls and ceilings dry at all times; observing a rigid cleanliness in the pens by replacing the litter once a week; keeping the drinking utensils clean and placing dropping boards under the roosts; using ashes or sand on the dropping board thus absorbing all disagreeable odors so detrimental to the health of closely housed fowls; these are some of the essential features of successful poultry raising. An invasion of parasites, such as lice or mites must be continually guarded against. If dust baths are provided and ordinary cleanliness observed the healthy hen will keep rid of body lice. A yearly application of a germicide on the whole interior of the house with an occasional one of kerosene on the roosts and nests are excellent preventives against lice and mites. In the carrying out of all of these details the paramount object of the caretaker should be to strive for the best health and comfort of his fowls. They will surely repay him in an overflowing egg basket.

The rearing of poultry in North Dakota is a comparatively new industry in a new state. If it keeps pace with the other industries of the state it will need a wider dissemination of the knowledge of better housing, better feeding, better stock and better management. The North Dakota State Poultry Association and the farm papers are doing a noble work in educating their patrons and readers on more efficient methods and practices in growing poultry. Your own Agricultural College and Experiment Station stands ready at all times to do what it can in the furtherance of the poultry interests of the state. As far as it lies in its power to do so, any information or aid will be cheerfully given.

GETTING READY FOR WINTER IN THE POULTRY YARD

O. W. Dynes, Assistant in Poultry Husbandry

This is the time of the year when every good poultry keeper is planning for winter. The winter quarters for the hens should be prepared and the fowls made thoroly comfortable for their five months' confinement. This will in many cases mean a cleaning out and renovating of the old hen house, the batening up of cracks, replacing of broken windows, the removal of all filth, and

the application of a disinfectant is necessary and expedient. Most poultry houses in our North Dakota climate should be well banked with stable manure and many of them in addition should receive a coat of tar paper to keep out the piercing winds that sweep across our prairies.

Culling the flock to its proper size so that it may be accommodated in the poultry house is a task requiring much thought and care. The flock has been greatly augmented in numbers by the year's crop of chicks. A severe yet careful selection should be practiced as only the best birds deserve places in the laying pens. Too many farmers are in the habit of retaining the old stock and letting most of the young pullets go. Such a course may insure a good breeding flock but from the standpoint of egg production it is poor practice. Only the best of the two and three year old hens should be reserved for breeders. The most profitable year for the hen is her first one and as many of the best pullets as there is room for should be kept for winter laying. The older hens cannot be depended upon to lay during the winter months when egg prices are high and egg production is at a low ebb. Overcrowding in the pens, however, should be guarded against as each laying hen should have approximately five square feet of room. Given dry well-lighted, roomy quarters with plenty of clean wholesome food and the hen will show her appreciation with an ever-ready cackle and regular contribution to the egg basket.

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When they are cheap pack them with my new method—will keep two years—will be as fresh as new laid eggs. No special place required to store them. Cost only 1/2c per dozen to pack them. Write me for circular.

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H. H. HINIKER, Dept. Mankato, Minn.



Home Affairs

Katherine C. Neilson, Editor, Mayville, N. D.

BE WARNED! I

"Before using spices for the Holiday goodies, test their strength. A batch of hermits which should have been delicious, were so strong of spices as to be almost uneatable, and all because the spices were **pure**. We find that the fresh packages of spices sold this year are double the strength of the old varieties, so half the quantity can be used."

Is not this a good sign of no enforcement of the Pure Food Law? The Colonial Dinner was a selection from the home larder, a pumpkin full of fruits was the center piece, an appropriate color scheme in rich yellow, red and purple. The old patriots, for national colors wore buff and blue, in place of red, white and blue, our new emblems. The plates were blue and white; the bowls and pitchers yellow with blue bands.

The meat course was wild turkey, venison or roast pig, served with old fashioned cider apple-sauce, a dish of baked beans and brown bread was served with pure apple cider foaming over the brim of the yellow pitcher with blue bands. A distinct fragrance followed the pitcher from the cellar stairs laden with the orchard odors.

The dessert was a boiled **Indian Plum Pudding** served with rich cream and shaved maple sugar. Large cups of coffee, well creamed, were a substitute for the uncreamed black coffee of today.

An old time recipe for cooking a ham, said to have been used by three generations in one family: Soak the ham over night in cold water, enough to cover. In the morning put it into a boiler, with cold water again enough to cover it. Add 1 pint of vinegar, 1 1/2 pints of brown sugar and 1 dozen cloves. Let the ham simmer three hours, then place it in a shallow pan, skin side up, with some of the liquor in which it was boiled, and let it bake two hours.

When done, remove the skin, and make a dressing of egg, a little sugar, 1 teaspoon of dry mustard, 1/2 teaspoon celery seed. Spread this over the ham and sprinkle with fine bread crumbs, then brown in the oven.—G. H.

A Colonial Indian Pudding

- 1 1/2 cups of corn meal.
- 2 tablespoons of flour.
- 1 cup of brown sugar.
- 1/2 cup of chopped suet.
- 1/2 teaspoon of soda.
- 1/2 teaspoon of salt.
- 4 eggs well beaten.
- 1 cup of seedless raisins.

1/2 cup of currants.

Some finely shaved citron

The flour and meal should be wet smooth with a little cold water then put into about 1 1/2 cups of boiling water in a pail set into hot water and stirred until it is cooked; then stir in these other ingredients. Boil it in a strong, long cotton bag, wet in hot water; flour the inside well by turning it wrong side out. Fill the cotton bag three-quarters full with the mixture and boil about five hours briskly, having the water slightly salted; six hours would not hurt it. It will be long on a platter as it is turned out of the bag, is to be cut in slices and served with cream in which maple sugar has been dissolved.—From an old N. E. Cook book.

USES FOR CRANBERRIES

Uses for Cranberries

No fruits contain salicylic acid but cranberries, therefore they should never be cooked in metal vessels and should never after cooking, be poured into any vessel except glass or stoneware.

Cranberry Sherbert

4 cups of stewed cranberry juice and the strained juice of 6 oranges.

4 cups of granulated sugar.

Pour into an ice cream can and freeze until a mush. Whip stiff 4 egg whites and stir in and finish-freezing.

Cranberry Frappe

Boil 1 qt. of berries and 2 cups of water 10 minutes, strain. Add 2 cups of sugar and boil until the sugar is dissolved, stirring it.

When cold add the juice of 2 lemons, and more sugar if too tart. Freeze to a mush and serve in glass cups with roast turkey.

In roasting spare ribs or loins of pork, try sweet cider in the pan instead of the small amount of water to start with. Baste often and notice the delicious flavor. A few whole spices improve it.

It Tries the Eyes

Why strain daylight thru lace curtains? Is it a fad? In a city where windows are so near other houses, this film of lace within may protect you from the curious vision without, but in the small town, country-city, or country proper it is a delusion and a trial to one's eyes.

In a country home with broad and beautiful landscape scenery do not dim the view thru a strainer of bobinet, Arabian net or elegantly figured lace. Let in the light—the sun—and God's lovely masterpieces to our view.

A convenient set of curtains for sleeping rooms, which are easily cleaned, are dotted Swiss muslin, made one-half or one-quarter yard longer than the upper sash. Drape them back with heavy cotton cords. For the lower sash curtain make them as long as the lower sash and when drawn back they hang on a line and below the upper curtain and have the appearance of a long curtain draped back and much easier to launder than a curtain full length.



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SHOES FOR MEN

These splendid men's shoes represent the best there is in shoe leather. Every piece of material is of the choicest tannage. The workmanship is perfect; the styles are up-to-date. When it comes to service, there is nothing that equals them in lasting qualities.

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are everything the name implies. They are **"built on honor."** No matter where you look, or what you pay, you will never find anything that will outclass them in wear, style or comfort.

If your dealer will not supply you, write to us.
Look for the *Mayer Trade Mark* on the sole.

FREE—Send us the name of a dealer who does not handle Mayer Honorbilt Shoes, and we will send you free, postpaid, a beautiful picture of George Washington, size 15 x 20.

We also make Leading Lady Shoes, Martha Washington Comfort Shoes, Yerma Cushion Shoes and Special Merit School Shoes.



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MILWAUKEE, WISCONSIN



AMONG OUR ADVERTISERS.

BETTER SAUSAGE--MORE LARD LESS WORK

Probably there is no more disagreeable work connected with farming than "Hog Killing." Butchering is a disagreeable job, but the preparation of the meat for winter keeping, making sausage and trying out lard, involves downright hard work of the roughest kind. Much of this labor can be avoided by having proper tools, and nothing will prove more effective than an "Enterprise" butchering outfit, consisting of an "Enterprise" Meat and Food Chopper and an "Enterprise" Lard Press and Sausage Stuffer.

The "Enterprise" Meat Chopper chops meat quickly, uniformly and perfectly. It cuts the meat without crushing or grinding, so that each minute piece will retain all of its natural goodness and flavor.

The drudgery of lard rendering and the hard work of sausage stuffing are overcome by the "Enterprise" Sausage Stuffer and Lard Press. You get more lard and better lard with this machine than in any other way, with one-tenth the work.

The "Enterprise" Sausage Stuffer has a patented corrugated spout which prevents air entering the casing, thus assuring the preservation of the sausage. You can't stuff sausage skins as effectively by hand nor with any other machine.

Send your name and address to The Enterprise Manufacturing Co. of Pa., 236, Dauphin Street, Philadelphia, for a copy of the "Enterprising Housekeeper." This is a cook-book containing over 200 choice recipes and other practical kitchen helps.

THE ENVILLA STOCK FARM SALE

The Envilla Stock Farm Sale, at Cogswell, North Dakota, was a grand success in every way, and amounted to \$10,000. Below are a few of the buyers at this sale. \$10,000 only trimmed the rough edges of Envilla Stock as they have over \$50,000 left which they offer in their Holiday Sales.

Geo. A. Lawrence, Spain, S. D., Reg. Angus cattle, Duroc Jersey hogs.

H. L. Strause, Brampton, N. D., Draft colts.

Walter Lanning, Milnor, N. D., Shetland ponies and Duroc Jersey hogs.

John Gorsuch, Milnor, N. D., Angus cattle, draft colts and Duroc Jersey hogs.

A. R. Zillgitt, Fairmont, N. D., Shetlands.

O. B. Johnson, Forman, N. D., Draft colts.

O. O. Goldberg, Enderlin, N. D., Reg. Duroc Jersey hogs, Shetland ponies, poultry and pet stock.

John Stout, Brampton, N. D., Draft

colts.

Geo. Bale, Harlem, N. D., Draft colts.

J. L. Reedle, Wyndmere, N. D., Shetlands.

Stearin, Wyndmere, N. D., Reg. Angus cattle, and Duroc Jersey hogs.

K. Napstad, Straubville, N. D., Reg. Angus cattle, Shetlands, Draft colts.

Eastgate Bros., Larimore, N. D., Angus cattle.

F. T. Hoppin, Lisbon, N. D., Poultry.

John Ross, Crete, N. D., Mules.

E. M. Duff, Brampton, N. D., Shetland ponies.

H. E. Owen, Lisbon, N. D., Poultry.

C. L. Smith, Elliott, N. D., Shetland ponies and poultry.

H. T. Hoppin, Lisbon, Dogs.

H. J. Arnold, Fairmont, N. D., Shetland ponies.

H. A. Smith, Havana, N. D., Shetland ponies.

Aug. Quast, Nicholson, N. D., Poultry.

J. Allen, Britton, S. D., Shetland ponies.

E. Catour, Cogswell, N. D., Duroc Jersey hogs.

John McGraw, Cogswell, N. D., Duroc Jersey hogs.

John Karas, Cogswell, N. D., Draft colts.

Al. Behl, Cogswell, N. D., Draft colts.

S. Highland, Brampton, N. D., Shetland ponies.

Geo. Hoehouse, Forman, N. D., Angus cattle.

A. B. Lindberg, Langford, S. D., Angus cattle.

NOT AFFECTED BY DEPRESSION

One Big Industry That Makes Its Business Grow and Expand During Year of Business Depression

When a manufacturing establishment reaches out in a year of depression and increases and expands its business, while others in the same line diminish their outputs or stand still, it is because there must be some unusually good reason for it, in this instance a splendid reputation and a more-than-ordinary meritorious product were responsible for the showing made.

The Mayer Boot & Shoe Company, Milwaukee, the largest shoe establishment in the Northwest, has just closed its fiscal year, and reports an increase in sales over the corresponding period of last year. This exceptional showing speaks volumes for the genuine merit of Mayer shoes, and is directly attributed to their high standard, and because of the fact that Mayer shoes have become universally and popularly known as "shoes of quality."

Most of our readers, no doubt, have become familiar with the shoe advertisements of this enterprising firm, that have been appearing in the columns of this magazine. To those who have not yet become familiar with the extraordinary wearing qualities of Mayer shoes, we would recommend a closer acquaintance, by a purchase of a pair at the first occasion.

The leading brands are "Honorbilt" fine shoes for men, "Leading Lady" fine shoes for women. "Yerma" Cushion shoes for both men and women (these are exceptionally fine shoes for people troubled with tender feet); the popular "Martha Washington" Comfort shoes, which have the largest sale of any shoes of their kind in the world, and the "Special Merit" School shoes (a strong and sturdy line of seamless school shoes that wear like iron). In addition to these brands, the Mayer Boot & Shoe Company make a complete line of every-day and Sunday shoes for all purposes. In fact, there is a Mayer shoe for every purpose and for every member of the family.

128 PAGE ENCYCLOPEDIA FREE

M. Sloman & Co., 147 Congress St., Detroit, Mich., the largest exporters of Raw Furs in the U. S., in their usual up-to-date fashion, are this year sending FREE to their shippers a handsome vest pocket Encyclopedia of 126 pages, containing general and valuable information, including National songs, list of choice literature, our Federal Government and hundreds of other valuable subjects, also instructions for DEALERS, TRAPPERS and HUNTERS. How to grade your own Furs—Recipe for scents, baits, etc. This valuable book is FREE to Shippers—Sent to others on receipt of 25 cents in stamps. Sloman & Co. have become so successful because they give Shippers a "Square Deal."

A HINT FOR CHRISTMAS

Just now parents are beginning to wonder what to give for Christmas. Wondering what will give a boy or girl the greatest delight.

Why not a pair of good skates?

There's nothing a boy or girl enjoys more than skating. And the invigorating air and the exercise do them an immense amount of good. Winter never fails to bring plenty of good skating weather—maybe not right at Christmas, but before the season's over.

Skates are a gift all parents can afford. If you'll send for the free catalog of Barney & Berry Skates, the kind which a boy or girl will like best, you'll find they cost very little. They're made in all styles. Write to Barney & Berry, 144 Broad Street, Springfield, Mass.

Shade Trees and Gardens.

C. B. Waldron, N. D. A. C., Editor.

WINTER PROTECTION OF TREES AND SHRUBS

C. M. Yerrington

Evergreens as a class are naturally fibrous rather than tap rooters, and they invariably root close to the surface, consequently they are susceptible to alternate freezing and thawing, which is more harmful than severe but steady cold.

Evergreens are also in danger of blasting, which is caused by strong sunshine after several days of dull freezing weather. To prevent this we must decrease the light but not the air. Small evergreens are commonly covered with straw or burlap, but in mild winters the plants are in danger for the want of air. Another bad feature of this method is that the covering is likely to harbor mice and rabbits, which will feed on the plants if they run short of rations. Burlap is preferable to straw as it admits more air and is not so likely to form a shelter for mice and rabbits.

Tender deciduous trees and shrubs are much easier to protect than evergreens because they require no air during their resting period, therefore, you can straw them, cover them with leaves or even bury them without any bad results. In covering everything with leaves or litter to break the force of the frost, bear in mind the necessity of keeping the mulch loose at all times. If it mats down loosen it with a fork during mild weather. Covering with straw is satisfactory for the hardier roses, if not troubled with mice or rabbits. Another good plan is to tie the stems together and cover them.

Winter Protection for Flowers

In November, after all growth in the garden has ceased, and the stems of all perennials are dried out, they should be cut off and burned. Spade under about four inches of well rotted manure. This will leave the ground in a good loose condition for the winter.

Next cover the bed or borders of perennials with five or six inches of rough stable manure, but not until a crust has frozen on the ground. This will be quite enough protection for the general run of hardy perennials.

Nearly all vines should have some winter protection as they are usually trained out flat against a building where they have no opportunity to protect themselves. Vines that are perfectly hardy in general will sometimes suffer in particular locations. For example,

drip is very hard on vines. To prevent such damage you can take up some burlap or cheese cloth over the vines. It is more convenient to lay them on the ground and cover them with leaves or litter.

All bush fruits such as raspberries, blackberries, currants and gooseberries, should be well mulched with some good manure which can be spaded under in the spring. In some localities raspberries winter kill when mulched; if so, you should lay them down and cover with leaves or straw, or bend the tops over and hold them to the ground by earth, or bend the tops over and hold them to the ground by earth or sods thrown on their tips. This will enable the snow to collect among them and protect them all winter.

"HINTS TO HOMESTEADERS"

William Lanxon

This is the title of bulletin 74 recently published by L. R. Waldron, Superintendent of the Dickinson Sub Experiment Station in which he gives many valuable hints on conditions in the western or drier portions of the state, and practical suggestions which the new settler will find helpful as a guide.

The bulletin treats very largely of grains, grasses and other plants that can be successfully grown in the drier portions of the state. It recognizes livestock as an important factor in the upbuilding of any new country and that the successful farmer will find his success depends fully as much upon animals

as upon grain. Several good crops of grain may lead the farmer to think that this is the ideal method of farming, but for continued prosperity, and as a help to "tide over" in bad years the farmer will find livestock his best friends. It is a well known fact that the land in the semi arid regions of this state is not overloaded with available fertility, which makes farm stock all the more essential, as they afford steady help to the grain producing power of the soil.

Rotation of crops is an absolute necessity, as the continued growing of small grains not only exhausts the soil fertility, but it injures the physical condition of the soil so that the amount of water the soil will contain is materially reduced. These injurious effects may be offset in a measure by summer fallowing and by the growing of cultivated crops. Whenever practicable a cultivated crop, corn or potatoes, should be grown in the rotation. It requires but little more work than summer fallow and the crop is almost extra, besides leaving the soil in as good if not better condition than summer fallow.

Many new settlers will want to grow a crop on their land the first year. In such a case, the breaking must be done early in the season, and should be at least 3 inches deep. In ordinary years flax leaves the soil in good condition for a crop of wheat the following season.

It pays to breed higher grade live stock, and it also pays to sow high grade grain if suited to the region. Many a poor crop has been charged to the soil, when inferior seed was the direct cause of the failure. It costs no more to raise a higher grade steer than it does a scrub.

The same rule applies to grain, a high grain will yield more than a low grade grain, and it should be every farmer's aim to raise only the very best. Changing seed grain is a losing proposition for in changing seed there is always danger of

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FARGO SEED HOUSE, - - - Fargo, N. D.

importing noxious weed seed and perhaps new plant diseases. The best method is for the farmer to select only his very best grain for seed and if this system is rigidly followed year after year there will be very little danger of the seed running out.

Among the grasses that can be grown in dry regions are brome grass (*Bromus Inermis*) slender wheat grass, clover and alfalfa. Among these perhaps Brome grass has attracted the most attention, as there are but few regions in this state where this grass has not proven satisfactory. Two very strong points are, that it produces an abundance of seed and is very sure of starting. Upon good soil it produces very good crops, while upon dry poor soil it only yields limited returns. Much interest has been shown in the culture of clover and alfalfa, and under some conditions they have been grown successfully.

It seems to thrive on blackish clay loam containing some sand and does not do well on high sand areas, tho there is a possibility of getting a variety which will grow well under these conditions?

WEED SPRAYING A SUCCESS

Professor Bolley of the N. D. Station
Authorizes Statement

As is well known, the North Dakota Experiment Station has for a number of years worked upon the question of the use of chemical sprays in destroying weeds in cereal grainfields. Professor Bolley as an Experiment Station man first undertook this work in America, and there seems to be no literature to show that he was not the originator of the work as conducted in Europe. It is certainly true that tho the experimental work was undertaken at the North Dakota Station in 1896 and carried along very connectedly to the present time by Bolley and his assistants, that there was no suitable machinery for such work to be found, either in Europe or America until the last three or four years.

Professor Bolley, has during the past three or four years, after becoming convinced that the process was one which would be of great value to the northern farmers, especially cereal growers, made every effort to get spraying machinery manufacturers of America to take an interest in the work and modify their machines in such manner that the work could be done by horse power, simply driving over the fields. In his correspondence he found, to start with, firms were not interested in the matter at all. They had not been in the habit of selling spraying machinery to grain

raisers, and did not believe the process feasible; hence, refused to even establish agencies in the northwest territory. These firms, however, have now recognized that a large field is open to them, and more than a dozen spraying machinery manufacturers are busily engaging in competing for the farmer trade in these machines.

He has been specially interested in getting the firms to strengthen their machines, and at the same time simplify them so that they can be handled by any ordinary teamster. In the last two or three years much improvement has been made in many of these machines, and it is believed that soon the field spraying machine will be looked upon as a part of the farm equipment, and the Professor predicts that it will eventually be as serviceable in increasing crop values in the case of potatoes, cereal grains, etc., as that of any one of the farm implements. Several of the spraying firms, however, have so perfected their machines that they are simple, and quite complete for the general field spraying.

The professor is at present engaged in introducing to spraying companies ideas of making special equipment in connection with these sprayers, which will allow the machines to be handled either as hand sprayers or general field sprayers. That is to say, he has asked the companies to make it possible to attach one or more lines of pressure hose to the machine in such manner that while the machine is being driven thru the field the spray can be thrown, either from the general spray beam or from nozzles directed by hand. The object of being able to direct the nozzles by hand will be apparent to those farmers who have

lands infested by Canada thistle, and patches of weeds. Furthermore, even mustard may be scattered thru the field in small clumps such that it is not desirable to run the spray beam all of the time. A man, or a couple of men, carrying the hose with nozzles attached, walking behind the machine would be able in this manner to make a large saving of the spraying solution, and catch all of the scattering clumps. The method becomes almost essential to those who wish to fight the Canada thistle, because with this weed it is desirable to use sodium arsenite or strong salt solution, both of which when made strong as they should be to be most effective are apt under certain conditions to be too strong for general use over the grain by means of the regular spray beam. The only added expense will be the introduction of a two or three water cock, by means of which the fluid can be shut off from the regular spray beam, and the pressure applied to the nozzles, and the purchase by the farmers of the necessary strands of pressure hose, which should probably be twenty to thirty feet long, and not to exceed three-eighths of an inch in bore. The nozzles are to be carried on poles as in the case of tree spraying. Several of the companies have agreed to equip their field sprayer for the coming season.

Nursery Stock.

Buy your nursery stock and seeds of the Clinton Falls Nursery Co., Owatonna, Minn. They will use you right.

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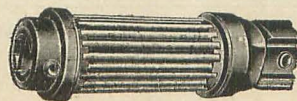
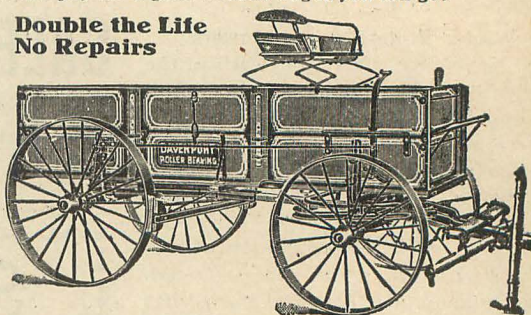
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Make 30% to 50% Lighter Draft

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Don't buy a wagon till you know all about the Davenport Roller-Bearing Steel Wagon. Let us show you why it's the only wagon you can afford to buy. Send for free Catalog R and do it today, before you forget.

Davenport Wagon Company, Davenport, Iowa

Gentlemen:

I was over in LaMoure county last week and for the first time heard such wonderful stories in regard to the Russian Ash. My friends out there told me they had ordered a lot of those trees at a fancy price; but of course they would grow under all kinds of neglect and without a drop of water from above or below. I told my friends that in my opinion they had simply been taken in. Please be kind enough to tell me what you know in regard to that tree, if it is as good as our native green ash or not.

Thanking you for the information in advance I am yours truly,

H. H. Storla.

H. H. Storla., Lehr, N. D.

In reply to your inquiry of November 20th I would say I have never heard of the Russian Ash. The ash, of course, is a native of Europe, and certain species extend eastward across Asia. The European Ash which is common in all northwestern countries of Europe extends as far as Western Asia, and is known as the *Fraxinus excelsior*. This is much like the White Ash tree of North America, both in size and general habit of growth.

I doubt if it would grow as well, or be as satisfactory for our conditions as the ordinary White Ash. Another old-

world ash is the *Fraxinus Manschurica*. This is a native of Manchuria, Korea, and Japan. It is a somewhat larger tree than our native green ash, and of vigorous growth. I do not know that this tree has ever been tried in this country, but I imagine it might be about equal, or perhaps somewhat superior to our native ash. I very much question if the nursery agent that you speak of has this tree for sale. The chances are that they are selling some ordinary ash tree like the White or Green Ash, and are making these extravagant claims to get buyers. The claim that any tree can grow without a reasonable supply of moisture and a good mellow soil about its roots is of course ridiculous.

Our native ash would probably grow with as little care as most trees, yet it is not worth while to plant it unless one can keep the soil mellow and moist, and free from grass and weeds by a reasonably good cultivation. Unless one is prepared to meet the natural demands that all trees must make, it is not worth while to plant them at all. The farmer who has not enterprise and ambition enough to take care of his grove will probably get just what he deserves when he puts his hard earned money into this so-called "Russian Ash."

C. B. Waldron.

were in bad condition on account of the grain being raised. Where this is the case a dark, heavy overgrowth of this lumber, which is very dark in color, it is exceedingly hard to make the paint cover properly; also it makes an uneven painting surface. It is our opinion had the paint been applied thirty days sooner, the work would have been better in the way of covering and general appearance, but possibly not in the ultimate result of the paint wearing. The only difference that could be in the wearing of the paint would be that the surface is more uneven where the grain is raised and the cracks or checks in the wide boards used on the fence. This might cause trouble in the way of dampness getting in the checks and forcing the paint off and, where the grain is heavy, on such lumber as hard pine and cedar, and this grain is raised badly from long exposure, it is very apt to splinter or raise up and allow dampness to penetrate back of the grain or splinters, and force the paint off. No matter how carefully cracks are puttied on heavy lumber, especially hard pine, the cracks will open more or less from the shrinking and swelling of the lumber in damp and hot weather; and there is more or less trouble with the paint on this class of work.

Priming

The paint was first weighed, then opened and condition was ascertained by placing a paddle in the package to see if the paint had commenced to settle or harden in the bottom of the can. If it was in good shape it was marked, "Condition on opening good." It was then thoroly stirred from the bottom of the package so as to get the true consistency of the paint. If there were instructions given by the manufacturer, as to the proper reduction of the paint for priming coat, a portion of the paint was reduced according to this reduction. If the paint was of the proper consistency when these reductions were used, for penetration and working, the directions were followed; if not, they were changed so that the paint would both work and penetrate properly. To do this, the formula of the paint was consulted and the materials used, both as to pigment and vehicle, were carefully considered before making a final decision on what was necessary to add to the paint to get the best results in penetration on the different kinds of lumber used in the fence, as it was not deemed practical to make a special mix for the northern hard pine as it is not of an extremely hard class of lumber. Then, the lumber had stood so long without paint that it was found to accept the paint as readily as the other woods used. The paint was tested for penetration on hard poplar, which is as hard a wood to have uniform penetration. The working and

OILS, PAINTS, AND PAINT PIGMENTS.

PAINT TESTS CONDUCTED IN COLLABORATION WITH PAINT MANUFACTURERS' ASSOCIATION

From Bulletin No. 81, published by N. D. A. C. Experiment Station

Preliminary Remarks: A series of practical paint tests were begun on the 27th of June 1907, in which the Paint Manufacturers Association collaborated. For these tests two fences were erected similar to the one erected in the summer of 1906. These fences were placed some rods north of the Creamery Building on the College grounds. They extend due north and south, each being 100 feet in length and some 30 feet apart. Posts, frame-work and clapboards are of the same material and constructed in the same manner as the fence described above.

The paints tested out were the whites, warm drabs and colonial yellows of 18 different formulas, representing types of the better class of combinations on the market.

The Paint Manufacturers' Association selected Mr. J. B. Campbell, one of the

most widely known practical paint experts, as inspector to work with Prof. Holley in securing the proper application of the paint.

The following general report, which is in substance the one prepared by Mr. Campbell, in conjunction with Prof. Holley, deals with the general condition of the lumber, paints and the application of the same on the lumber.

General Report: The fence was built in May, and the first paint was applied on the 27th of June, and some of it later so that the surface was pretty badly weather-beaten. Some of the boards of hard pine were checking badly. Soft pine and cedar were not in such a bad shape altho they were badly weathered. The worst feature was the fact that all of the surface was badly marked from the nails. The rain had caused the nails to rust and had stained the wood black to the extent of a black spot or streak from an inch to an inch and a half wide and the entire width of the board. This you will understand made it very hard for the paint to be mixed to the proper consistency for penetration, and at the same time have sufficient body to cover this stained surface. Also the cedar boards

penetration of the different lumbers on the fence was carefully noted during the time of application and noted down on the printed blanks.

Drying

The drying of the priming coat was taken every twenty-four hours up to the third day, and the difference in the drying of the different lumbers was noted. Paint on the hard pine dried the slower, but the cedar required more time for the paint to harden. This is a very treacherous wood to paint. The paint seems to be dry on the surface in 48 hours after application, in good drying weather, but by scratching the surface with the fingernail the paint breaks loose, and will almost powder by rubbing it between the fingers, and the grain of the wood will be found to contain the oil from the paint. In 3 days, however, the paint becomes more firmly bound to the surface and seems to be adhering solidly to the underneath surface. In 4 to 6 days the paint becomes hard thruout. These conditions existed both on zinc and combination paints and leads, and if not thoroly understood, unsatisfactory work is sure to follow. The drying on the hard pine was slow to start. It hardened thru more rapidly than on the cedar. The soft pine dried more uniform with the exception of the small pitch pockets in the lumber, which retard the drying some little. As a whole the paint dried uniform on all the wood, and in 5 or 6 days was hard dry thru with no surface dried spots on any of the wood, and the paint all dried very uniform and satisfactory.

Shellacking

The shellac was applied over the priming coat on spaces 2, 4, 5, 6, 10, 11, 12, 13, 14, 15, 16; on the bare wood on 1, 7, 8, 9. This was done to give a demonstration as to the two methods of applying shellac. The application of the shellac can be criticised for the following reasons: We reduced the shellac very thin and gave it to the painter with instructions to apply the shellac thin and just over the knot or sappy place, and use care and not apply too much shellac, or cover too large a space; but, instead of following instructions, he would shellac a spot 2 or 3 inches in excess of the place he was instructed to put the shellac over. This may or may not cause trouble with the paint blistering or chipping, but in case there is trouble it can be easily traced by this report. Where the paint or shellac was applied over the bare wood, the same trouble exists but not to such a great extent.

Puttying

The putty used was made by ourselves from S. P. lead ground in oil and whiting, mixed with oil and japan. The putty was knifed into the cracks and uneven places and when an excess was used it was mostly sandpapered off, but there

may be a few places on the wide, hard pine and cedar boards where the putty is left heavy, as the surface was very badly checked and hard to get in good condition, and, as before stated, the putty may cause some trouble by breaking away.

Second Coat

After carefully noting the consistency of the paint when it was broken up for the priming coat, we knew which of them would stand the proper reduction of turpentine for the second coat, and as all the paints were of different consistencies, some of them would not make satisfactory second coats as sufficient turpentine could not be added if these paints were broken up with all the liquid they contained in the manufacture. We thought it was best to allow the packages to stand untouched and then when the work was ready to second coat, open and carefully take the oil from the pigment, then thoroly stir the paint, and, if found to be of heavy consistency, measure back a certain portion of the oil from the paint, then reduce down to a good working consistency with turpentine; then, again, measure the oil left over from the paint and make note of same on report sheet. Where the paint was found to be too thin, the oil was entirely left and as much turpentine as would go into the paint to make it of proper consistency was used. One pint of paint of all colors was used for the last reduction. In very few cases, if any, were the directions given by the manufacturer followed.

Drying

The drying of the paint was noted every 24 hours for 3 days, when the paint began to dry out and harden to a semi-oil flat. There was very little difference in the drying on the different kinds of lumber except in a few places on the hard pine and cedar. They all hardened down together in 5 and 6 days.

Third Coat

Fresh paint was opened and all of the liquid poured from the paint, which was then thoroly broken up. The condition was noted to see if there was any tendency on the part of the paint to settle hard in the bottom of the package. This was not noticeable except in three or four paints where there was a tendency to harden, especially on a gray color.

The liquid was gradually poured back into the package and thoroly broken up and used as received, with the exception of two paints which were of a semi-paste consistency, and one that was too thin and part of the oil taken away, also two that had to have white base added to make them heavy enough in consistency for finishing coat.

Working

Paints all worked out smooth and even, and with few exceptions the working was good on all colors.

Covering

Covering of the white was very good with the exceptions of 2 or 3 that did not cover well on some of the black spots and heavy dark grain on the cedar boards. The yellow and gray covered good.

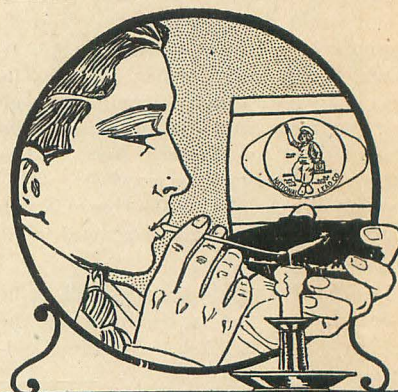
Drying

The drying on all of the paints was exceptionally good. They all dried from the bottom up on all coats, and there is not a shriveled or puckered place on the entire fence.

Penetration

The penetration was exceptionally good and uniform from the priming to the finishing coats. There is not a spot or a sunken place on any of the lumber.

Brushing and application of the paint was good thruout.



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